World Oil Survey Number

The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

THE WEEK'S NEWS INTERPRETED

DEC 21 1937

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VOLUME 77 MARCH 18, 1935 NUMBER 1

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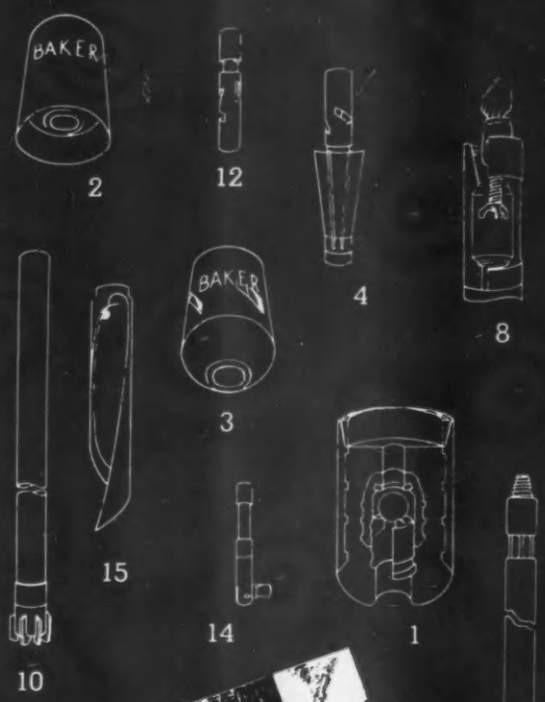
Out of the broad line of successful BAKER OIL TOOLS, we illustrate several which are recognized around the world as possessing all the qualities needed for safe and profitable "results."



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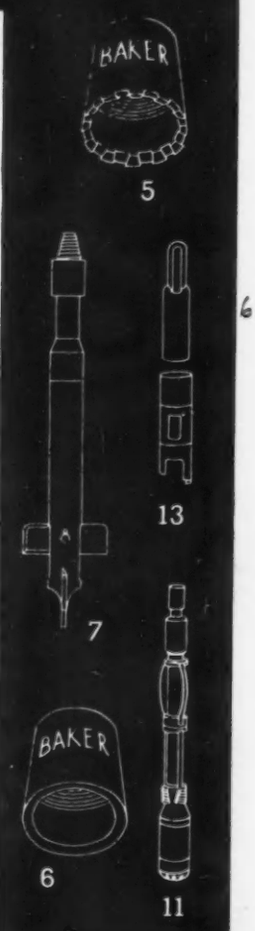
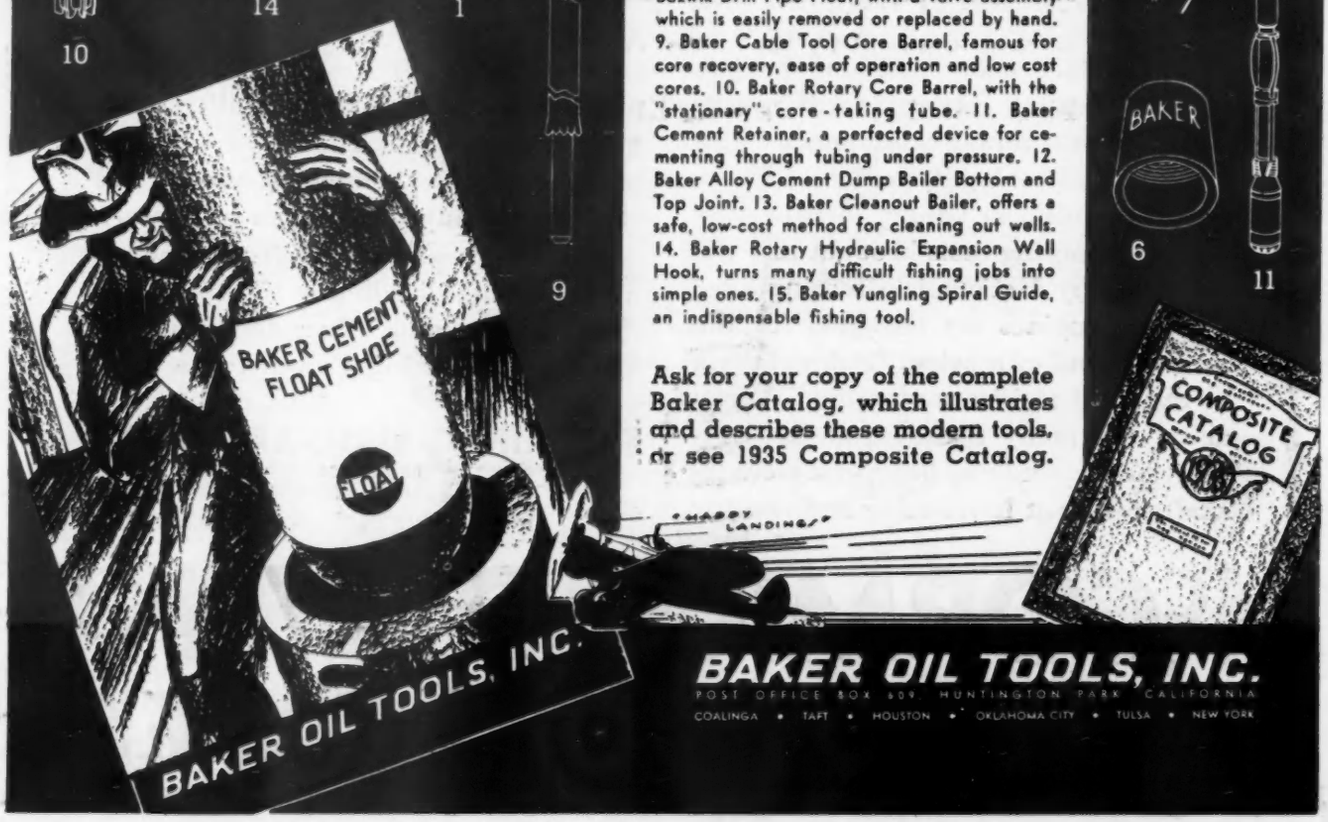


Ask for your copy of the complete Baker Catalog, which illustrates and describes these modern tools, or see 1935 Composite Catalog.



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THE OIL WEEKLY

ENGINEERING « STATISTICS » THE WEEK'S NEWS

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PUBLISHED BY
THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

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SPECIALIZED OIL JOURNALS
Published by
THE GULF PUBLISHING COMPANY

BRANCH OFFICES

NEW YORK.....250 Park Ave.
PITTSBURGH.....Standard Life Bldg.
CHICAGO.....141 W. Jackson Blvd.
LOS ANGELES.....Haas Bldg.
TULSA.....Hunt Bldg.
FORT WORTH.....W. T. Waggoner Bldg.
WASHINGTON.....Albee Bldg.

Member Audit Bureau of Circulations.

Published every Monday. Single Copies 15 cents. Subscription price: domestic and foreign, $1.00 a year. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies.
Advertising rates on application.

These DEPENDABLE BAASH-ROSS PIPE CUTTERS HAVE EARNED A WORLD-WIDE REPUTATION

THE tools shown on this page have earned a reputation for ease of operation and certainty of results through many years of successful operation in oil fields everywhere. Wherever wells are being drilled there is almost certainly a man who has run or assisted in running them.

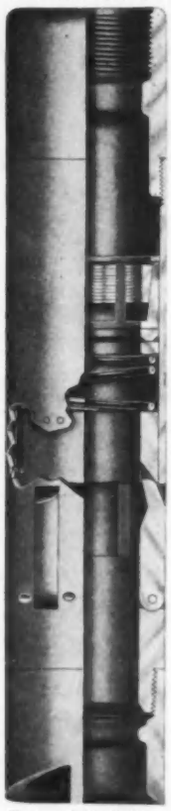
Both pipe cutters and the Autolock Safety Joint are available in the United States through the Baash-Ross Service Department. Highly skilled operators not only perform the work in the field but are competent to advise with you as to the best solution of your fishing problems.

Baash-Ross Internal Casing Cutters, External Drill Pipe Cutters and Autolock Safety Joints are sold only for export. They are stocked for immediate shipment in all standard sizes. Special sizes and adaptations are supplied on order.

Internal Casing Cutter in operating position

BAASH-ROSS INTERNAL CASING CUTTER

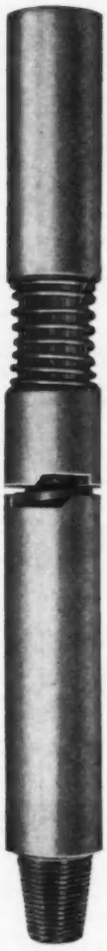
THE Baash-Ross Internal Casing Cutter is run on drill pipe or tubing to the point where the lowest cut is to be made. Slow right hand rotation completes the cut. By successively raising the cutter to the next highest point and repeating the cutting operation, several cuts can be made in one run, the cut off pieces being later recovered with a spear or other fishing tool.



External Drill Pipe Cutter — Overshot Type

BAASH-ROSS EXTERNAL DRILL PIPE CUTTER

Run on wash pipe, this cutter is lowered over the fish to the washed down depth where the cut is quickly and smoothly made by rotation of the fishing string. The cutter is then withdrawn with the cut off section held securely by the overshot dogs. By repeating this operation all the stuck pipe can be removed. A slip assembly is used when cutting flush joint drill pipe.



Autolock Safety Joint, Releasing Position

BAASH-ROSS AUTOLOCK SAFETY JOINT

This safety joint is run near the bottom of the fishing string to enable the operator to back-off readily in the event the fish or fishing tool cannot be removed. The Autolock Safety Joint will invariably unscrew before any other joint in the string for it releases with one-half the torsional strain required to break out a tool joint. The resistance to unscrewing is ample for the operation of fishing tools.

These tools are described on pages 113, 114 and 121 of the 1935 Composite Catalog. Also shown in the new Baash-Ross Catalog, a copy of which will be sent on request.

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VOLUME 77, No. 1 MARCH 18, 1935

THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

The Changing Panorama

World Oil Reserve Survey

THIS issue of THE OIL WEEKLY is devoted to a survey of the world's crude oil reserves in those areas outside the United States. It is the most complete works of its kind ever published, consisting of tabulated data on development and production of about 675 fields located in 40 different countries.

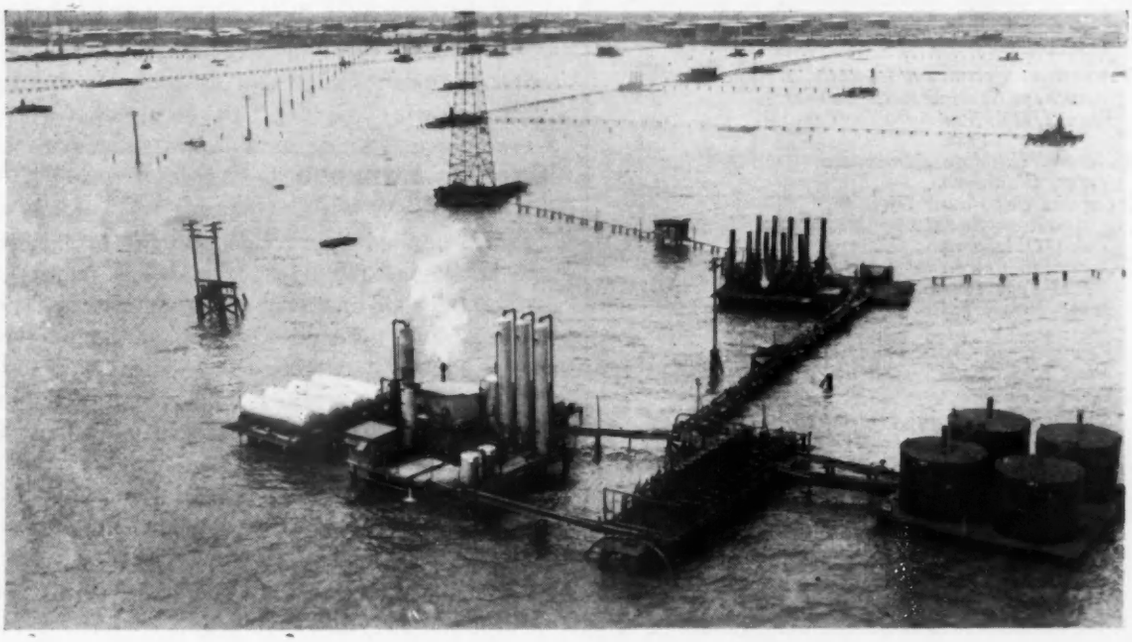
The question of crude oil reserves for meeting the consumptive demand of the future has been of increasing importance to American operators. Therefore, it is of interest to look at the question from the viewpoint of the entire world. Noteworthy is the fact that there has been no outstanding discovery in the past three years; this applies to all countries as well as the United States.

Therefore, it appears that the period from 1935 to 1940 will be characterized by an international search of unprecedented intensity for petroleum reserves. Also, enlarged refinery capacities outside U. S. A. and better crude prices are anticipated.

These are three broad statements, but they seem substantiated by a detailed study of the 675 oil and gas producing areas and prospective regions made by THE OIL WEEKLY during the past year, and the results of which work are given in this issue. They are further substantiated by figures that point definitely to a greatly increased demand and consumption of petroleum and its products.

Also of interest to the American oil man is the steady

A view of Lake Maracaibo, Venezuela, where one of the world's outstanding marine drilling developments has taken place. Of particular interest in the accompanying photograph is the gasoline plant, which, like the derricks, has been constructed on pilings driven into the lake bed.



lessening of the gap between the production recovery of the United States and the second ranking producing nation. It appears that this trend will continue Page 21.

East Texas Allowable

HARRY MILES, chief enforcement officer for the Railroad Commission in East Texas, has detailed a group of assistants to devote their full time to enforcement of the ruling requiring East Texas wells to make their allowable production each day. This is a very important decision.

Heretofore, many of the "dead" wells have been making their month's allowable in one day by swabbing. If this practice is necessarily discontinued it will mean that these wells must be reconditioned if they are to participate in the field's allowable. It is likely that many of the wells will be equipped with lifting equipment, if the rule is enforced. This practice also would increase the amount of labor employed in the field. It is estimated that between 1000 and 3000 wells are not producing their allowable each day, but are taking a full month's allocation in a day or two. Page 18.

The Oil Man's Calendar

MARCH
- 21-23 *American Association of Petroleum Geologists, Wichita, Kansas.*
- 29 *American Petroleum Institute (Kansas Chapter), Hutchinson, Kansas.*

APRIL
- 8-13 *Oil Equipment and Engineering Exposition, Houston, Texas.*
- 10-11 *American Petroleum Institute, Division of Production, Mid-Continent District, Spring Meeting, Amarillo, Texas.*
- 11-13 *Petroleum Industry Electrical Association, Dallas, Texas.*
- 18-19 *National Petroleum Association, Cleveland, Ohio.*
- 22 *American Chemical Society, New York.*
- 25-26 *American Petroleum Institute, Division of Production, Southwestern District, Plaza Hotel, San Antonio, Texas.*

MAY
- 1-3 *Natural Gasoline Association, Tulsa, Oklahoma.*
- 8-11 *Oil and Gas Power Division, American Society of Mechanical Engineers, Tulsa, Oklahoma.*
- 14-16 *American Petroleum Institute, Mid-Year Meeting, Mayo Hotel, Tulsa.*

JUNE
- 20-21 *Pennsylvania Grade Crude Oil Association, State College, Pennsylvania.*

SEPTEMBER
- 25-27 *National Petroleum Association, Atlantic City, New Jersey.*

NOVEMBER
- 4-5 *Independent Petroleum Association of America, Annual Meeting. Dallas, Texas.*
- 11-14 *American Petroleum Institute, Annual Meeting, Biltmore Hotel, Los Angeles.*

Federal Legislation

THE oil industry is certain to receive considerable attention in Congress within the near future. Federal recognition of interstate compacts will be considered soon by a House committee, while Senator Thomas and Representative Disney of Oklahoma are urging action on the bills they have written, which would increase federal control of the oil industry. Page 12.

Oklahoma City Recovery

THE Oklahoma City field as of March 1 had produced 253,479,385 barrels of oil from 1132 wells and approximately 11,000 productive acres. It was discovered early in December, 1928. Two Wilcox sand wells have recovered in excess of 1,000,000 barrels each and three others have passed the 900,000-barrel mark. A tabulation of the producing status of these wells is of interest, and is shown on page 14.

It will be noted that many of the wells have been reworked, or are on artificial lift, which means that the Oklahoma City field definitely has passed its heyday.

Gas Waste

IT may be some time before gas waste is legislated out in Texas, but it is written on the cards that the vast wastage of this natural resource will be stopped. If the state legislature does not control the situation the federal legislators may be expected to take a hand.

While some of the operators are certain to be hurt by any new legislation, it is likely that the majority will be benefited, and the Panhandle may be destined for a big comeback if the gas market is made more favorable.

Meanwhile, Texas legislators continue to study the situation. Last Friday a specially appointed committee submitted a bill that will go before the House.

Page 18.

Markets Improve

THE decided improvement in the market situation is one of the most outstanding recent developments in the oil industry. Gasoline prices for several weeks have been steadily improving at both refinery and service stations. Although they still remain too low to show satisfactory profit in this division of the industry, there is an increasing hope that product prices will have sufficient future gains to warrant higher crude prices. Stricter control in East Texas is the basis for the current market strength with, of course, the approach of the higher gasoline consumption season. Spot market prices for tank cars now are the highest in four months.

Page 9.

Strong Markets Generate Optimism

JACK LOGAN
Associate Editor

Effective control of hot oil in East Texas pushes gasoline prices above average levels of last year. Still better product prices are needed, however, to justify the higher crude prices for which producers are hoping.

PROMINENT among recent developments affecting the oil industry has been the decided improvement in the market situation. Gasoline prices have continued to improve at both refinery and service station, and there is increasing hope in the industry that product prices will show sufficient further gains to warrant higher crude prices.

Despite improvement of the past two weeks, however, the prices at refineries are still substantially too low to warrant either a crude price increase or materially stronger retail markets. For any well-rounded advance in earnings in the industry, it would seem that the first requisite must be continued strengthening of the prices for which refiners can sell their products.

Only when the refiner will be receiving prices still higher than those of today will he be able to pay more than current postings for crude. And similarly, only through the pressure of increased postings at the refineries, will there be full justification for service stations in posting higher retail prices.

Refinery Operations Long Unprofitable

FOR month after month the refining branch of the industry has been unable generally to show profits. While the producing branch has been operating profitably, with the marketing branch also showing generally satisfactory results except during some expensive price wars, the refining division has steadily experienced hard times and financial losses. In the integrated companies the refinery operation losses have been absorbed or offset in the producing, pipe line, and marketing profits, if any.

But for the independent refining company or operator there has been no shock absorber and no profits. The opportunity for satisfactory profit in refining has been limited generally only to the concerns or individuals operating outside the law. And even for the processor of hot crude the profits have been circumscribed by the depressed wholesale product prices of the past many months—except where the crude has been actually stolen, rather than paid for at sub-posted prices.

Higher Prices at Refineries Needed

FOR the industry as a hole to emerge into a healthier and wealthier condition, therefore, one of the foremost requirements will be the correction of that disparity between prices in the refining and the other branches.

That such correction and improvement may actually materialize within coming weeks or months—at least to some extent—is a hope generally prevalent in the industry today. It is a hope, moreover, that appears to be reasonable and possible of fulfillment. The advancing refinery prices of the past two weeks or so have represented progress toward the desirable general oil industry prosperity, and further market improvement appears likely.

Stricter Control Basis for Improvement

THE current market strength is based in large part on stricter control of East Texas that has followed the recent setting up of the new federal tender board. Anticipations of further market improvement are consequently conditioned, of course, on continued success in regulating that area. But chances appear high that the new East Texas control is here to stay for considerable time.

Further stimulating the markets, in the meantime, is the approach of seasonally higher gasoline consumption, with spring and summer just ahead. As consumption rises in the spring, some increase of prices is usually expected.

Optimism in Futures Trading

WHILE optimism over the prospects for gasoline prices has been manifested in the tank car market, it has also been exhibited in the recently inaugurated crude oil and gasoline futures trading in New York. Prices that have been prevailing on the exchange have made allowance for some market improvement, especially on gasoline, before the earliest delivery date

(June) provided for in the contracts. On the selling side of the contracts, however, there have apparently been not only speculators but also some refiners willing to accept the bid prices.

Spot Prices Highest in Four Months

THE spot market for tank cars of gasoline at Mid-Continent refineries has continued to improve. At the middle of the past week the prices had risen to the highest levels since last November. They were substantially above the average of the past year, having been exceeded in 1934 only during two brief periods, in the May and November flurries.

In connection with that comparison, it is significant that the present market strength appears to have a firmer foundation than the rising markets of last year. The May and November rises of 1934 were based primarily on actual or contemplated purchases of surplus gasoline by major companies from East Texas refiners under oil code sponsorship. The present market firmness is based, on the other hand, upon the hope that there will not be any surplus; that present relatively successful control in East Texas will continue and keep surplus gasoline from hanging over the markets in the first place.

Quarter-Cent Rise for Week

AT midweek, just passed, the tank car prices on gasoline at refineries throughout the Mid-Continent were a quarter of a cent a gallon higher than a week earlier, for all grades. Tenderable third grade U. S. motor gasoline (below 62 octane) had risen to 3¾ cents a gallon in East Texas, North Texas, and Oklahoma. Standard or middle grade (62-67 octane) was selling in East Texas for 4¼ cents, and in North Texas and Oklahoma for 4⅜ cents. Premium grade (68-70 octane) was averaging 4¾ cents a gallon in all the mentioned areas.

As compared with the current price of 3¾ cents a gallon for third grade gasoline in Group Three (Oklahoma) the price went as high as 4⅛ cents about mid-November, 1934, and to 4¼ cents the latter part of May. To reach those peak levels of 1934, the present market therefore would still have to make considerable progress.

Product Prices Still Relatively Low

FOR the gasoline prices to justify paying more than current postings for crude oil, even more progress would be needed. Under the oil code, purchasers are required to pay for 36 gravity Mid-Continent crude as much as 18.5 times the previous month's average tank car price per gallon of 60-64 octane gasoline (provided state allowables are adhered to). The 18.5 ratio represented the average for 1928-1932.

With gasoline at the present price, the code would permit the purchaser currently to pay as little as 69 cents per barrel for 36 gravity Mid-Continent crude. The posted price that is actually being paid is $1.00. Before it would be mandatory under the code for purchasers to raise that present crude posting, the third grade gasoline at Oklahoma refineries would have to command a tank car price average in excess of 5.4 cents (or roughly 5⅜ cents) a gallon for a month.

IT is obvious, in view of the above figures, that tank car prices are still greatly depressed, in comparison with the 1928-1932 average. It is readily apparent, similarly, that the prices at refineries must become stabilized at levels much higher than those of today before producers can definitely count upon higher prices for their crude.

Effective Control in East Texas

HOT oil output in East Texas has apparently declined to between 20,000 and 30,000 barrels daily. Around 20 of the district's numerous refineries were reported to be operating late last week. That was about the same number as for a week previously. It had been expected that additional plants would shut down, because of increasingly strict prohibition of hot oil activities. Failure of the additional shutdowns to materialize, despite the stricter enforcement, suggested that some refiners might be proposing to switch without interruption from illegal to legal crude supplies, in the hope product prices will rise sufficiently to permit profitable operation even on posted-price crude.

Tender Board Continues Successful

THE new federal tender board for East Texas was still functioning effectively late in the past week. F. W. Fischer, attorney for several East Texas refiners, was again unsuccessful when he made a second attempt to have the board enjoined in federal district court at Beaumont. Previously, injunction was sought to restrain the federal board from interfering with oil shipments that had been approved by state authorities. It was finally agreed the complainants would seek to settle the controversy by presenting further information to the board. In the new attack, complainants were said to be willing to permit gauging of their tanks but unsuccessfully sought to restrain the board from requiring presentation of records and books.

Another complaint offered in the attacks was that the maintenance of a tender board only in East Texas represents discrimination against that area. But the federal government is understood to be contemplating action which would eliminate that objection. Oil Administrator Ickes was reported over a week ago to be considering establishment of several additional tender boards. Cities mentioned as likely locations for such new boards included Houston, whence much Texas oil moves by ships; Fort Worth, an important railroad center; and Oklahoma City, scene of Oklahoma's outstanding flush producing area, and locale of some notorious hot oil activities in the past.

Raised The GRAVITY 0.3° API.

and the price 4¢ per BBL.

Dehydration of emulsified crude to the ideal cut restores the clean oil to its natural gravity; in many instances increasing the price per barrel for the entire production.

Crude No. C-335 is only one of many such instances. Petreco electrical dehydration of this oil reduced the cut from 3.0% to 0.2% and raised the gravity from 34.9° to 35.2° API. The increase of 0.3° API brought an increase in price of 4c per barrel, or $40.00 per day for the throughput of this Petreco unit, and resulted in more economical and satisfactory handling from the time the oil was produced until it was manufactured into refined products.

Petreco engineers can definitely establish the dehydrating procedure that will insure the highest return for your production, and the most efficient handling from the well through the refinery. This valuable service is available to you on request.

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LOWER CUT - INCREASED GRAVITY - HIGHER PRICE

Federal Oil Bills *and Compacts Are to Be* In Congress Soon

Washington, D. C.—Legislation giving federal recognition to the interstate oil compact will be considered in the near future by the oil subcommittee of the House committee on interstate commerce, but it is not anticipated that any further measures will be considered this session, unless the situation changes radically, although on March 13 Senator Elmer Thomas of Oklahoma spoke in the Senate on the urgent need for control legislation.

Belief that the oil industry now has as much federal control as it had prior to the Supreme Court decision in the Panama-Amazon cases was expressed by Representative Cole of Maryland, chairman of the subcommittee.

No further legislation should be attempted, he indicated, until the state compact plan has been tested out. A definite plan for the legislation making the compact effective has not yet been worked out, it was said.

The Thomas bill has been given the approval of Oil Administrator Harold L. Ickes and the measure may be brought up for consideration at the next meeting of the Senate mining committee.

Anxious also to secure action on his bill, Representative Disney of Oklahoma this week conferred with officials of the Department of Justice to whom it has been referred with request for an opinion.

Declaring that the need of permanent legislation to enable the Federal Government to assist the oil states in their stabilization program is "self evident," Senator Thomas submitted to the Senate figures on a recent poll taken on the major phases of the oil question, in which 958 returns were received out of 5329 ballots sent to all persons interested in oil in East Texas.

These returns showed 875 votes for federal allocation of quotas in commerce and production quotas to states against 57 in opposition, the Senator declared. Imposition of an "adequate" tariff on imported oil was favored by 930 and opposed by eight, and reenactment and increase of the present excise taxes on foreign oil was favored by 941 and opposed by eight.

Results of the vote on other questions were shown by the Senator as follows: Repeal of present exemption of imported bunker oil from the excise tax, 888 for and 50 opposed; correction of present discrimination against domestic asphalt by the Bureau of Public roads, 910 for and 23 opposed; limitation of crude oil storage withdrawals, 911 for and 33 opposed; provision for interstate compacts with a federal umpire, 816 for and 64 opposed.

The short-term legislation under which it is operating, Senator Thomas declared, has prevented the industry from making large investments in exploration and development work which are essential and has also interfered with its re-employment program.

Most of the measures affecting the industry expire during the current year, he pointed out. The oil code will expire in June, unless renewed; the excise taxes will end about the same time, and the Texas statutes expire in September.

"It is therefore important that this sesssion of congress should pass some legislation which will give this industry a sound basis on which to operate," he said.

"This measure proposing federal aid to the oil states and to the oil industry has been receiving the enthusiastic support of the greater part of the industry. An unusual majority of Texas operators are in favor of this bill. This is true even in the East Texas field, which is the center of whatever opposition to this measure may exist.

"The attitude of the people of Texas on this question has been repeatedly expressed before congressional hearings and public meetings held in Texas," he continued. "When a similar matter was given a hearing by the Senate Committee on Mines and Mining in May, 1934, Texas sent representatives here to support the bill which I introduced at the previous session of congress and which, in many respects, was much like the present bill so far as principle is concerned although the machinery set up was quite different in character.

"The two states of Texas and Oklahoma are not the only ones which are urging the adoption of this measure. Similar support comes from other states but I have emphasized these two because of their large production and strategic importance in any conservation program.

"More than the oil states are involved, however. More than the industry itself is concerned. The whole economic structure of the nation is affected by the health of the oil industry. If we deny to this important phase of the nation's business the support which only the federal government can furnish it, since only the federal government has authority over interstate commerce, then we are retarding the return of prosperity and preventing the employment of large numbers of men for whom there would be positions and jobs if we gave to this great industry permanent legislation on which it might base its plans for expenditure of many millions of dollars."

Market Demand Bill Introduced in House

Austin, Texas.—The new market demand bill, which was outlined in the last issue of THE OIL WEEKLY, was officially introduced in the House last Wednesday.

The bill is sponsored by Representatives Bob Calvert, Sidney Latham, and Albert Walker. When the measure was introduced, 83 members of the House attached their signatures. The bill will be known as H. B. 782.

The attitude of the governor toward the measure is unknown. He has advocated curtailment of production for physical waste alone, but it is believed that his attitude may be favorable, since the bill is so drafted that consideration of market demand in fixing allowables is optional.

Representative Sidney Latham, chairman of the House Oil, Gas and Mining Committee, said that the date for the first public hearing on the bill had been set tentatively for Tuesday night, March 19.

Operators Seek to Move Oil Without Tenders

Austin, Texas.—Two new suits were filed in Federal Court here last week by operators of reclamation plants in East Texas, seeking to obtain injunctions which will permit them to move reclaimed oil without Railroad Commission tenders.

W. W. Bennett, operating Bennett Reclamation plant at Kilgore, seeks a permit to move 23,004 barrels of oil, while in the second suit, filed by Kil-Tex Reclamation plant, an injunction to move 30,000 barrels is asked.

These suits, which were set for hearing in San Antonio on March 16, are similar to that tried on March 9, in which C. A. Davenport was granted an injunction permitting him to move reclaimed oil picked up in ditches in the East Texas field.

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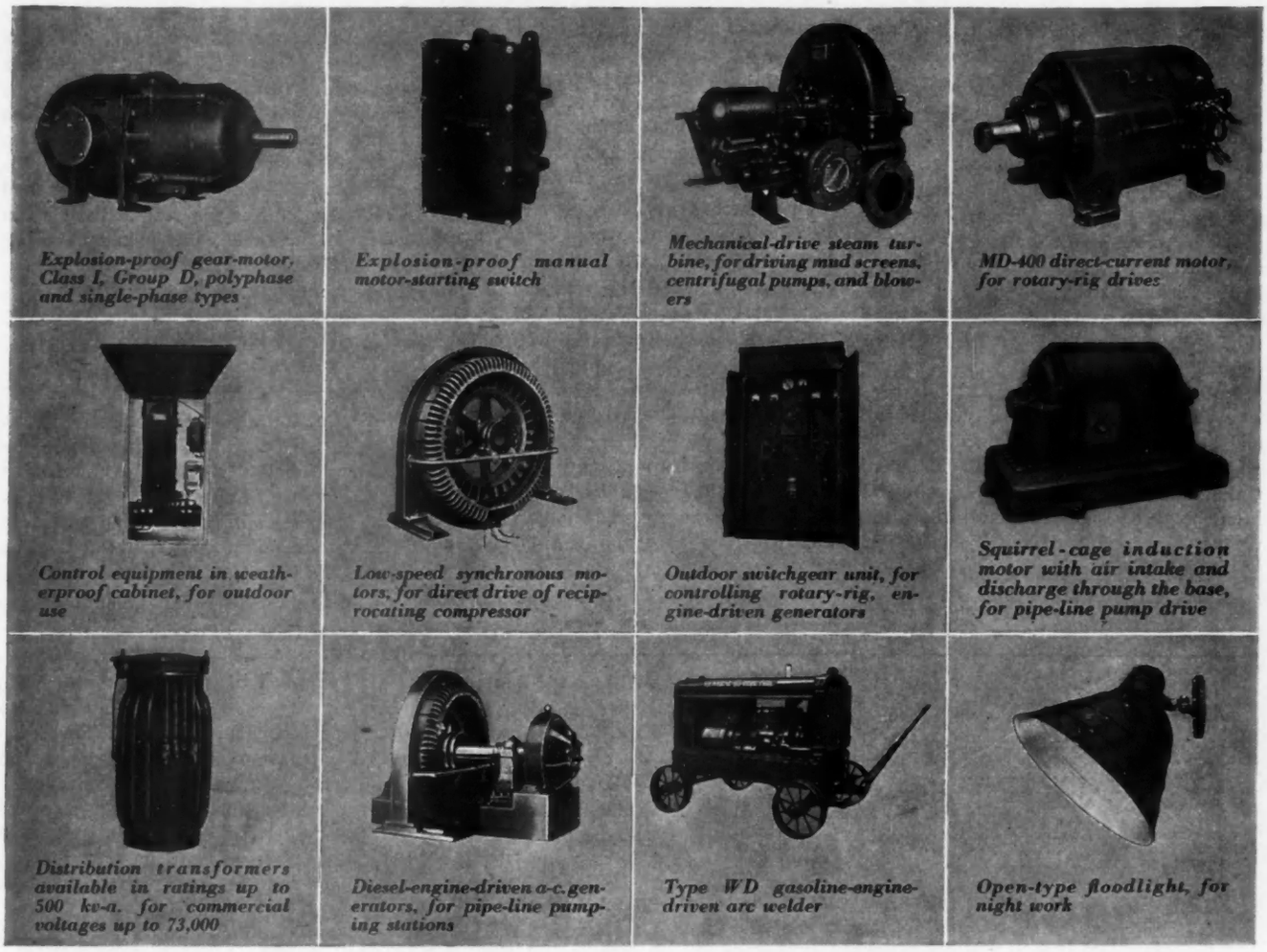

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GENERAL ELECTRIC

Oklahoma City *Field Recovery Now Exceeds* 250,000,000 Barrels

Oklahoma City.—As of March 1, 1935, based on figures reported to the proration department, the Oklahoma City pool had produced 253,479,385 barrels from a total of 1132 wells and approximately 11,000 productive acres. No dependable estimate is available as to the amount of oil surreptitiously produced from the pool but more than 10,000,000 barrels have been found by the Oklahoma Tax Commission through its study of gross production tax payments. The accompanying table presents information as of January 1, 1935, the latest date for which detailed data are available and six years and 27 days after date of the discovery well which was completed on December 4, 1928.

As of January 1, 1935, of the 543 Wilcox sand oil wells, 109 were flowing naturally through casing and seven were flowing naturally through tubing; 291 were on some form of gas lift; 59 were pumping; five were swabbing; 22 were shut down; and 50 were being reconditioned. One well in this zone had been acidized, 245 had been shot and 94 were showing water. One hundred and one wells in the zone had been plugged back. In the Simpson zone, 39 wells were flowing naturally through casing; two were flowing naturally through tubing; two were flowing naturally after gas lift kick-off; 167 were on some type of gas lift; 93 were pumping; 54 were shut down; and 14 were being reconditioned. Thirty-nine wells had been shot and 168 were making water. In this zone, 86 wells had been plugged back and six had been drilled deeper. In the Fault Line zone one well was flowing naturally through the casing, two were on gas lift and one was being reconditioned. Three wells had been shot, two plugged back and two were showing water.

Recovery in different portions of the field has varied widely. From barrels recovered standpoint the northwest quarter of section 2-11n-3w led the field on January 1, 1935. In this quarter section 43 wells drilled on a density of 3.72 acres per well, had recovered 18,029,893 barrels, a recovery of 419,300 barrels per well and 112,687 barrels per acre on the basis of 160 acres. The northeast quarter of Section 3-11n-3w, lying immediately to the west of the above quarter section, was drilled to a density of 5.517 acres per well and the 29 wells had yielded 17,336,963 barrels, a recovery of 597,826 barrels per well and 108,356 barrels per acre. These two quarter sections, comprising only 8.8 percent of the total estimated acreage of the Wilcox zone, had yielded 23.3 percent of the total reported recovery.

On March 1, 1935, two wells in the Wilcox zone had recovered in excess of 1,000,000 barrels each and three others had passed the 900,000-barrel mark. Westgate Oil Company's Carey 3, SE 34-12n-3w, in the northern portion of the pool, was completed on August 17, 1931, at 6315 feet in the Wilcox sand. Its original potential was 96,540 barrels and its present potential is 11,400 barrels, both on the basis of a four-hour gauge times six. With this decline in potential it had yielded 1,067,899 barrels, was producing on gas lift, had not been shot and was making no water. Skelly Oil Company's Hurt 1, NW 2-11n-3w, was completed on September 25, 1930, with an original 24-hour rating of 70,782 barrels from Wilcox sand drilled to 6539 feet. Its present 24-hour rating is 6978 barrels with a recovery of 1,004,178 barrels. The well has not been shot, is flowing naturally through casing and is making no water.

Sunray Oil Company's Reinhart-Donovan 1, SE 34-12n-3w, is in third place among the Wilcox sand wells with a recovery of 952,888 barrels. It was completed on December 28, 1930, flowing at the rate of 71,490 barrels daily but is now declined to a rating of 2298 barrels. It is producing on gas lift, has not been shot and is making no water. The same operator's Mead 1, SE 34-12n-3w, was completed on December 28, 1930, with an initial rating of 66,168 barrels daily which is now declined to 3024 barrels with a recovery of 921,185 barrels. It is flowing naturally through casing, has not been shot and is making no water. Phillips Petroleum Company's Mosey 2, NE 3-11n-3w, was completed September 4, 1931, with a daily rating of 87,942 barrels but has declined to 8184 barrels with a recovery of 946,995 barrels. It is producing on gas lift, has not been shot and is making no water. Several other Wilcox sand wells are nearing the 900,000-barrel mark and before the end of the year at least seven wells in the same zone should have exceeded 1,000,000 barrels each.

ZONES	No. of Wells	Reported Recovery	Approximate Acreage	Recovery Per Well	Recovery Per Acre
Wilcox Zone:					
Producing	543	151,423,398	.....	.....	.....
Gas wells	1	44,644	.....	.....	.....
Abandoned	7	336,728	3,600	275,508	42,168
Totals	551	151,804,770			
Simpson Zone:					
Producing	376	67,737,376	.....	.....	.....
Gas wells	47	4,127,411	.....	.....	.....
Abandoned	38	2,824,947	6,000	162,017	12,448
Totals	461	74,689,734			
Arbuckle Lime:					
Producing	35	6,952,622	.....	.....	.....
Gas wells	62	8,668,037	.....	.....	.....
Abandoned	9	1,751,782	1,400	163,891	12,409
Totals	106	17,372,441			
Fault Lime:					
Producing	5	583,600	.....	.....	.....
Abandoned	2	610	70	83,459	8,346
Totals	7	584,210			
Class D Wells:					
Simpson above Wilcox	2	118,511	20	59,255	5,925
Raney-Highley 1	1	101,212	.....	.....	.....
Cleveland sand	4	7,326	.....	.....	.....
Totals	7	227,049			
GRAND TOTALS	1,132	244,678,204	11,090	216,147	22,062

Royalty Owners Would Be Required to Pay Oil Tax

Austin, Texas.—Representative J. C. McConnell has introduced a bill in the Texas Legislature which would forfeit to the owner of the surface rights mineral properties in those instances where the owner failed to pay taxes on the mineral estate.

The bill would be an amendment to Article 5512 of the Revised Civil Statutes of Texas.

It would apply to interests in oil, gas, or other minerals, belonging to "any person, firm or corporation, other than those owning, occupying, and using the surface right to said land" where the owner shows "no outward manifestation of ownership to such royalty, leases, oil, gas or mineral right, and have failed to pay taxes due thereon for a period of five years."

These royalty owners would forfeit their rights to the surface owner when such owners show they "have held peaceable and adverse possession to said royalty, oil, gas or mineral right or leases thereon for a period of five consecutive years . . . and paid the taxes due on said property for a period of five consecutive years . . ."

EASTMAN *scores* AGAIN

THE feat of controlling the famous Conroe Crater Well was considered one of the outstanding achievements of the oil industry. Successfully extinguishing and killing the burning and cratered Sinclair-Prairie Seeligson No. 1, writes another chapter in oil field history.

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EASTMAN methods are saving the oil industry thousands of dollars. Side-tracking cement plugs, straightening crooked holes, and profitably drilling along faults are everyday jobs.

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This is the relief well and the burning crater which was located in the Premont Pool north of Falfurrias, Texas.

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MEN IN THE INDUSTRY'S NEWS

A. W. PEAKE, vice president and director in charge of production for the Standard Oil Company (Indiana), made a short stop at Stanolind Oil and Gas Company headquarters in Tulsa, as he returned to Chicago from Beaumont, Texas, where sale of the Yount Lee properties was recently consummated.

ROSCOE AYERS, engineer for National Supply Company with headquarters in Tulsa, was a business visitor in Oklahoma City during the week.

R. J. ST. GERMAIN, consulting geologist of Houston, and P. N. Wiggins, Jr., and D. A. Patton, independent oil operators of Dallas, were Tulsa visitors during the early portion of the week.

CLYDE BECKER, well known consulting geologist and mining engineer, has returned to his home at Chickasha, Oklahoma, after spending several weeks on a mining project in Arizona. Becker's company is said to have blocked out several hundred thousand tons of gold ore which will run better than $4.00 per ton.

T. J. ALLISON, a driller whose residence is in Tulsa, lost his right arm in an oil field accident in the Muenster field, 15 miles west of Gainesville, Texas. Mrs. Allison had not been informed of the nature of the accident which occurred on Friday, March 8.

J. F. CORCORAN, special representative for Trimont Manufacturing Company, left Tulsa early in the week for a business inspection of the fields of California.

FRANK BOYER, sales representative in the Tulsa district for Hewitt Rubber Corporation, is at home and able to sit up although one of his legs remain in a cast as the result of serious injuries sustained in a Tulsa testing laboratory more than two months ago. Physicians who attended Boyer say that it is almost a miracle that he survived the accident.

J. WARREN MacCLATCHIE, president of MacClatchie Manufacturing Company, Compton, California, has returned home with a new automobile bought in Detroit, after several weeks of airplane, train and automobile travel. He flew to Mexico and then back to Texas and then to Michigan. Snow was too deep and the weather too cold for him to see the Michigan fields.

THEODORE A. LINKE, of Alberta, Canada, geologist in charge of Western Canada for the Imperial Oil, Ltd., was guest speaker Thursday night, March 14, at a meeting of the Houston Geological Society. He discussed "The Foothills Structures of Alberta, Canada."

DR. BELA HUBBARD, head of the geophysical department of Carter Oil Company in Tulsa, has been made assistant to the chief geologist of Standard Oil Company of New Jersey and will go to New York immediately after the coming American Association of Petroleum Geologists convention at Wichita, Kansas. He will be succeeded by Stewart Sherar, formerly in the geological department of Humble Oil & Refining Company at Houston. Sherar came to Carter Oil Company late in 1934.

H. G. Texter, sales engineer for Spang-Chalfant & Company, presented "Standard Seamless Extreme Line Casing for Oil Wells," to members of the Mid-Continent Section, Petroleum Division of the American Institute of Mining and Metallurgical Engineers in their meeting held on Monday evening, March 11.

W. L. MORONEY, who has been with Humble Oil & Refining Company, has been transferred to Guinia as warehouseman for Standard Oil Company of Venezuela.

H. L. "LES" STEGALL, formerly at Tyler, Texas, for Shell Petroleum Corporation, has been transferred to the Houston office where he will do detailed special work attached to the executive department. It was reported the previous week he would be in the scouting department, but this was erroneous.

DIED:

HOWARD BENNETTE, president of the Western Petroleum Refiners Association and member of the Planning and Coordination Committee, died in the Mayo clinic, Rochester, Minn., on March 10. Mr. Bennette was born at Flatonia, Texas, on January 14, 1890, and attended public schools at Conroe, Texas. Ran away from home during boyhood and became brakeman for the Great Northern Railway but returned home due to an injury and completed his high school work at Conroe. Graduated from the law school of the University of Texas in 1909 and returned to Conroe where he practiced law until the United States entered the World War when he organized and was made captain of a national guard company. Was accepted for federal service but war ended before the company was ready for duty. Upon his discharge he entered the legal department of Sun Oil Company and remained in Dallas until 1920 when he was elected secretary-manager of the Texas-Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association. In September, 1923, he accepted the secretaryship of the Western Petroleum Refiners Association and came to Tulsa the following month when offices were moved from Kansas City to Tulsa. In 1933 he was elevated to the presidency of the association. In the spring of 1934 he was appointed refinery coordinator and subsequently was made an active member of the Planning and Coordination Committee.

WALTER W. STEINER, 48, driller in West Texas for the past eight years, succumbed to an attack of pneumonia last week in a hospital at Pecos, Texas. He is survived by his parents, four brothers and one sister, and when off duty made his home at Fort Worth, where funeral services were held March 11.

KENNETH WATTS, general manager, Compania Carrilera de Petroleo (Railroad Petroleum Company), Buenos Aires, died recently in Baltimore, Maryland, where he had gone for treatment. Mr. Watts was born in Hollywood, California, about 45 years ago. He was employed as petroleum engineer in various American fields, including Texas and Oklahoma, and served with distinction in the World War. In 1920 he accepted a position as drilling and production superintendent with Railroad Petroleum Company, large producers at Comodoro Rivadavia, Argentina, later becoming general manager of the company, with offices in Buenos Aires. He was well-known in oil circles in this country, England, and Argentina.

RALPH H. CLORE, general sales manager, The Medart Company, St. Louis, Missouri, died on March 6.

ROBT. M. BULLA, for many years secretary and manager of Central Oil Company of Whittier, California, also a State Senator and attorney, died late in February at the advanced age of 83 years. He came to California 50 years ago and was a pioneer in oil development in the Los Angeles Basin. He is survived by two daughters.

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East Texas Wells *to Be Required To Make* Allowable Each Day

Kilgore, Texas.—Owners of "dead" wells and those inactive because of paraffin and mechanical difficulties in the East Texas field are to be deprived of their production allowables from such producers unless properly conditioned to make their production allocation each day. Harry Miles, chief enforcement officer for the Railroad Commission in the field, recently detailed a group of assistants to devote their full time to ferret out this type of violation of proration rules governing the field. The drive promises to create a vast amount of work for oil field labor, and to materially enhance the market for pumping equipment.

Due to being shorthanded and occupied with more important proration matters, the commission has heretofore paid little attention to the growing practice of many companies and operators in secretly shifting the allowable of "dead" wells to active producers on a given lease. Miles assumed charge of enforcement in the field on February 1. While lacking official figures as to the number of "dead" wells he considers the number sufficient to demand immediate attention.

Qualified observers contend that between 1000 and 3000 wells sharing in the proration allowable of the field, which has 16,300 completed producers, are not producing their allowable each day, as required by the commission's regulations. Many of these wells are no longer capable of flowing, while others have become sanded up, else tubing is blocked with paraffin accumulation. Owners have been content to take the risk of penalty suits being filed by the state rather than to stand the expense of restoring their wells to active production.

Warnings have been issued by Miles that penalty suits will be filed and prosecuted. Notice also has been given that wells making a high percentage of water must be plugged back, as provided for in the commission's rules, else plugged and abandoned. Complaints have been more numerous lately because of such wells causing a spread of the water table. Field inspectors for the commission are uncovering instances where wells are standing with a high column of salt water, but make sufficient oil to pump with short tubing string, or use air or gas-lift flowing devices successfully without bringing water to the surface. Engineers report that this virtually stationary column of water will tend to spread to nearby producers, and contaminate those drilled a safe distance above the water level.

Owners of nonflowing wells that have been swabbed each month to produce proration allowable must equip such wells with pumping equipment and operate same, else swab the well each day, according to Miles. Reports indicate that a large number of wells are making their monthly quota, amounting to an average of 813 barrels, by swabbing one or two days. This swabbing service can be had for less than the minimum wage required to hire a pumper by the month, and the lease owner defers his investment in pumping equipment. Major companies are said to rank along with the small property owners in the practice of substituting the swabbing truck for pumping equipment.

A fair sized army of workmen will be given employment directly as result of the commission's drive on the elimination of "dead" wells from the proration schedule. Companies that have standardized 20 wells or more simultaneously report that each well required the services of an average of six men for seven days, working in eight-hour shifts. The average man-power will be considerably greater on single installations. The cost of equipping a completed well for pumping will average about $3000, according to a survey of the situation, with central power units and back-side crank hookups important factors in holding the average down.

Panhandle Gas Waste Bill Drafted by Committee

Austin, Texas.—The House Oil, Gas and Mining Committee's sub-committee, assigned to prepare a bill to prevent waste of gas in the Panhandle, Friday had turned in a bill. The subcommittee voted three to two on approval of the measure.

The bill still permits cooperative drilling, production and marketing, as provided in the first draft the subcommittee prepared. No gas may be blown into the air, and sweet gas not used for light or fuel must be repressured to the sand, after the gasoline is extracted. Sour gas burned for carbon black must be processed in plants able to extract one pound of black per thousand feet. The bill does not prohibit the use of either sweet or sour gas for gas-lift or lifting oil.

The railroad commission would be empowered to limit the production of gas to the market demand, allocating the gas among the purchasers, distributors and consumers. The allocations made by the commission shall be on an acreage basis, with a unit assignment limit for each well, and allocating to each well its share of the available market. Neither the production of sweet gas nor sour gas shall be limited by the market demand for the other, each being produced according to the demand for it. Allowables fixed are to be made for the calendar year. No well with a potential of two hundred thousand feet may be curtailed to less than fifty thousand feet daily, nor may any well produce more than 25 percent of its potential. The commission would still act as arbiter on the price as in the first draft. When purchaser and seller cannot agree, but the seller need not accept the price if he chooses to shut in his well. That section of the bill has been eliminated which provided that if any portion of the act is held unconstitutional, then the entire act shall fall. Instead it is provided that the contrary shall be held, and that invalidation of one section shall not affect the validity of the others.

This report will be discussed at a hearing on the bill this week.

April Crude Allowable Raised 7000 Barrels

Washington, D. C.—Permissible oil production in April will be increased seven thousand barrels a day over the March limit under orders issued Friday night by Oil Administrator Harold L. Ickes. This places the daily allowable output at 2,527,300 barrels against 2,520,300 barrels.

At the same time the administrator announced that the gasoline allowable for next month would be 34,520,000 barrels, a reduction of 1,340,000 barrels from the March figure. The decrease was ordered with a view to reducing refinery gasoline inventoried by 1,520,000 barrels during the month.

The daily allowable for every producing state was changed by the administrator in arriving at the April allowable. Practically all these changes were of minor amount. The largest increase being 2300 barrels in Oklahoma and heaviest cut being 1200 barrels in Arkansas.

April daily production for the various states will be as follows:

Arkansas, 30,700 barrels, down 1200; California, 493,300 barrels, up 700; Colorado, 3700, up 200; Illinois, 11,000, down 200; Indiana, 2300 up 100; Kansas, 141,000, up 1300; Kentucky, 15,300, up 600; Louisiana, 111,000, up 500; Michigan, 32,700, up 1100; Montana, 9700, up 200; New Mexico, 49,700, up 400; New York, 11,700, up 400; Ohio, 11,300, down 200; Oklahoma, 493,300, up 2300; Pennsylvania, 44,300, up 1000; Texas, 1,021,000, up 900; West Virginia, 11,000, down 300; Wyoming, 34,300, down 800.

WORLD OIL SURVEY

A FUNDAMENTAL STUDY OF PETROLEUM DEVELOPMENT AND TECHNOLOGY OF ALL COUNTRIES OUTSIDE OF THE UNITED STATES

COMPILED AND PUBLISHED BY
THE OIL WEEKLY
HOUSTON, TEXAS. U.S.A.

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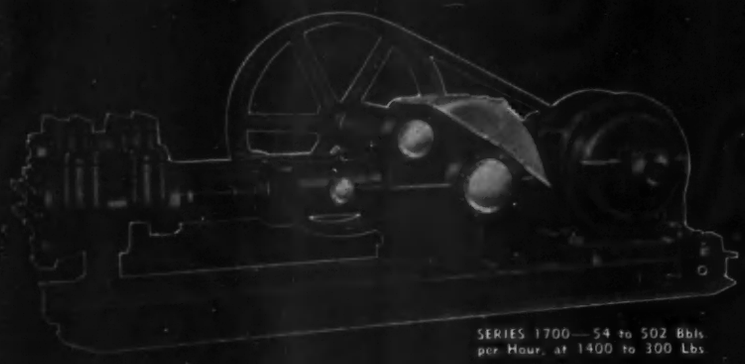
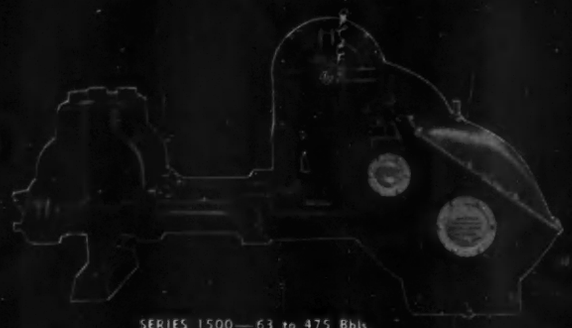


SERIES 1700—54 to 502 Bbls. per Hour, at 1400 to 300 Lbs.



SERIES 1500—63 to 475 Bbls. per Hour, at 800 to 175 Lbs.

FIG. 601
Walking Beam Pump, 30 to 55 Bbls. per Hour

FIG. 604 — For Gas or Vacuum, 26 to 28 Points Vacuum, 14" to 20" Cyl.

SERIES 2000—63 to 475 Bbls. per Hour, at 800 to 175 Lbs.

SERIES 1800—50 to 288 Bbls. per Hour, at 650 to 150 Lbs.

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FIG. 201 — Rodline Pump, 31 to 41 Bbls. per Hour

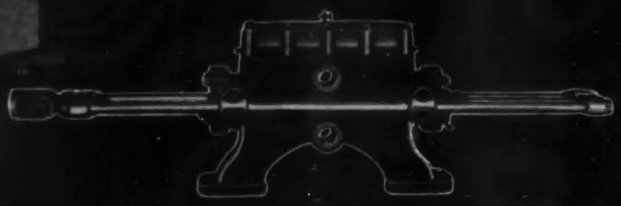

FIG. 301 — Jerker Pump, 32 to 157 Bbls. per Hour

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for every oil industry need

Exploratory Drilling *to Characterize International* Oil Industry in 1935-1940

[*Enlarged Refinery Capacities Outside U. S. A. and Better Crude Prices Anticipated*]

W. V. GROSS
Foreign Editor

PRECLUDING possibility of commercial production of any natural or synthetic substitute for gasoline in quantities sufficient to take care of the world's needs, the period from 1935 to 1940 will be characterized by an international search for petroleum reserves of unprecedented intensity.

Moreover, while there undoubtedly will be local and temporary setbacks, the producer of oil throughout the world probably will be receiving a better price for his oil five years hence than he is today, notwithstanding that stocks have been going up as a result of general overproduction.

Another opinion, and the two foregoing statements are merely opinionary conclusions arrived at after consideration of facts brought out in a survey, is that the campaign of exploratory drilling must be accompanied by an international program of increases in refinery capacities outside the United States and by a certain amount of shifting in the locations of refining centers throughout the world.

Those are three broad statements. They seem substantiated by a detailed study of more than 600 oil and gas producing areas and prospective areas on six continents made by the writer in 1934 and 1935 in connection with accumulation of data for the "World Oil Survey" appearing in the following pages of this book. Reinforcing such a picture comes from cognizance of the fact that various government bureaus of this country at home and abroad, and government bureaus of other nations, and the oil industry's own figures here and abroad point definitely to substantially increased demand and consumption of petroleum and its products.

The sovereignty of the United States in the world of oil, measured by the gap between the amount produced in that country and the amount produced by the nation ranking second, is relatively not what it used to be. Probably it will not be as great five years from now. Its efficacy as a barometer of international oil probably will react accordingly.

Valentine R. Garfias and R. V. Whetsel of the foreign department of Henry L. Doherty & Company state world production has exceeded demand every year for five years. They put the aggregate excess for that period at 207,150,000 barrels, and accuse the United States of contributing more than half that amount to oil's delinquency. Outside of the United States, the rest of the world has added 343,745,000 barrels to storage during the 1930-34 period.

These gentlemen also point out that the statistical position of the petroleum industry outside the United States is decidedly unstable and probably will become more acute due to added Iraq production. Possibility of a sympathetic reaction in the United States is predicted for this "just-around-the-corner" dilemma in the rest of the world. Some may consider the unfavorable statistical condition a necessary purge that must come before better times.

Be that as it may, one is privileged to point out that it has been three years since a market factor pool (Conroe) has been discovered in the United States. With the exception of Poza Rica field in Mexico, the magnitude of which is undetermined but unquestionably large, and Buscani field in Rumania, the same holds true for the world as a whole. Not only this, but decreased yields from many of the important foreign sources of world supply must be anticipated. In fact, they have been in evidence for some months.

Russia is important in international oil. It produced 166 million barrels in 1934 to continue an uninterrupted gain in output started three years ago. On the other hand, increases in domestic consumption by the Soviets have been relatively much greater in the same period.

Anticipation of a continued domestic consumption rate of gain in excess of the rate of gain in domestic supply stands as the reason for authorization by the Soviet oil trusts of widespread geological and geophysical exploration. Such exploration has been fruitful. Scores of prospects have been found. These have yet to be subjected to drilling. (See detailed data on Russia.) That drilling will not be delayed too long. Two things will accelerate it: Water encroachment in market factor fields (Baku district), and the more important fact that if

World's Production of Crude Petroleum Since 1857, by Years and Countries, in Barrels of 42 Gallons

YEAR	Rumania	United States	Italy	Canada	Russia	Poland	Japan and Formosa	Germany	India	Dutch East Indies	Peru	Mexico	Argentina	Trinidad	Egypt	Other Countries	Total	YEAR	Pct. Prod. by U.S.
1857	1,977	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,977	1857	.00
1858	3,560	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,560	1858	.00
1859	4,349	2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,349	1859	31.5
1860	8,542	500,000	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	508,578	1860	98.3
1861	17,279	2,113,609	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,130,917	1861	99.1
1862	23,198	3,056,690	29	11,775	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,091,692	1862	98.8
1863	27,943	2,611,309	58	82,814	40,816	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,762,940	1863	94.5
1864	33,013	2,116,109	72	90,000	64,686	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,303,780	1864	90.5
1865	39,017	2,497,700	2,265	110,000	66,542	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,715,524	1865	91.9
1866	42,534	3,597,700	992	175,000	83,052	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,899,278	1866	92.3
1867	50,838	3,347,300	791	190,000	119,917	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,708,846	1867	90.2
1868	55,369	3,646,117	367	200,000	88,327	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,990,180	1868	91.2
1869	58,533	4,215,000	144	220,000	202,308	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,695,985	1869	89.9
1870	83,765	5,260,745	86	250,000	204,618	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,799,214	1870	90.7
1871	90,030	5,205,234	273	269,397	165,129	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,730,063	1871	90.8
1872	91,251	6,293,194	131	308,100	184,391	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,877,267	1872	91.5
1873	104,036	9,893,788	467	365,052	474,379	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,837,720	1873	91.3
1874	103,177	10,926,945	604	168,807	583,751	149,837	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,933,121	1874	91.5
1875	108,569	8,787,514	813	220,000	697,364	158,522	4,566	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,977,348	1875	88.1
1876	111,314	9,132,669	2,891	312,000	1,320,528	164,157	7,708	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,051,267	1876	82.6
1877	108,569	13,350,363	2,934	312,000	1,800,720	169,792	9,560	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,753,938	1877	85.4
1878	109,300	15,396,898	4,329	312,000	2,400,960	175,420	17,884	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,416,761	1878	84.7
1879	110,007	19,914,146	2,891	575,000	2,761,104	214,800	23,457	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,601,405	1879	84.3
1880	114,321	26,286,123	2,035	350,000	3,001,200	229,120	25,497	9,310	.....	.....	.....	.....	.....	.....	.....	.....	30,017,606	1880	87.6
1881	121,511	27,661,238	1,237	275,000	3,601,441	286,400	16,751	29,219	.....	.....	.....	.....	.....	.....	.....	.....	31,992,797	1881	86.4
1882	136,610	30,349,897	1,316	275,000	4,537,815	330,076	15,549	58,025	.....	.....	.....	.....	.....	.....	.....	.....	35,704,288	1882	85.0
1883	139,486	23,449,633	1,618	250,000	6,002,401	365,160	20,473	26,708	.....	.....	.....	.....	.....	.....	.....	.....	30,255,479	1883	77.5
1884	210,667	24,218,438	2,855	250,000	10,804,577	408,120	27,923	46,161	.....	.....	.....	.....	.....	.....	.....	.....	35,968,741	1884	67.3
1885	193,411	21,858,785	1,941	250,000	13,924,596	465,400	29,237	41,360	.....	.....	.....	.....	.....	.....	.....	.....	36,764,730	1885	59.4
1886	168,606	28,064,841	1,575	584,061	18,006,407	305,884	37,916	73,864	.....	.....	.....	.....	.....	.....	.....	.....	47,243,154	1886	59.4
1887	181,907	28,283,483	1,496	525,655	18,367,781	343,832	28,645	74,284	.....	.....	.....	.....	.....	.....	.....	.....	47,807,083	1887	59.2
1888	218,576	27,612,025	1,251	695,203	23,048,787	466,537	37,436	84,782	.....	.....	.....	.....	.....	.....	.....	.....	52,164,597	1888	59.9
1889	297,666	35,163,513	1,273	704,690	24,609,407	515,268	52,811	68,217	94,250	.....	.....	.....	.....	.....	.....	.....	61,507,095	1889	57.2
1890	383,227	45,823,572	2,998	795,030	28,691,218	659,012	51,420	108,296	118,065	.....	.....	.....	.....	.....	.....	.....	76,632,838	1890	59.9
1891	488,201	54,292,655	8,305	755,298	34,573,181	630,730	52,917	108,929	190,131	.....	.....	.....	.....	.....	.....	.....	91,100,347	1891	59.6
1892	593,175	50,514,657	18,321	779,753	35,774,504	646,220	68,901	101,404	242,284	.....	.....	.....	.....	.....	.....	.....	88,739,219	1892	56.9
1893	535,655	48,431,066	19,069	798,406	40,456,519	602,669	106,384	99,390	298,969	600,000	.....	.....	.....	.....	.....	.....	92,038,127	1893	52.6
1894	507,255	49,344,516	20,552	829,104	36,375,428	949,146	171,744	122,564	327,218	688,170	.....	.....	.....	.....	.....	.....	89,335,697	1894	55.2
1895	575,200	52,892,276	25,843	726,138	46,140,174	1,452,999	141,310	121,277	371,536	1,215,757	.....	.....	.....	.....	.....	.....	103,662,510	1895	51.0
1896	543,348	60,960,361	18,149	726,822	47,220,633	2,443,080	197,082	145,061	429,979	1,427,132	47,536	.....	.....	.....	.....	.....	114,159,183	1896	53.4
1897	570,886	60,475,516	13,892	709,857	54,399,568	2,226,368	218,559	165,745	545,704	2,551,649	70,831	.....	.....	.....	.....	.....	121,948,575	1897	49.5
1898	776,238	55,364,233	14,489	758,391	61,609,357	2,376,108	265,389	183,427	542,110	2,964,035	70,905	.....	.....	.....	.....	.....	124,924,682	1898	44.4
1899	1,425,777	57,070,850	16,121	808,570	65,954,968	2,313,047	536,079	192,232	940,971	1,795,961	89,166	.....	.....	.....	.....	.....	131,143,742	1899	43.5
1900	1,628,535	63,620,529	12,102	913,498	75,779,417	2,346,505	866,814	358,297	1,078,264	2,253,355	274,800	.....	.....	.....	.....	.....	149,132,116	1900	42.5
1901	1,678,320	69,389,194	16,150	756,679	85,168,556	3,251,544	1,110,790	313,630	1,430,716	4,013,710	274,800	10,345	.....	.....	.....	20,000	167,434,434	1901	41.4
1902	2,059,935	88,766,916	18,933	530,624	80,540,044	4,142,159	1,193,038	353,674	1,617,363	2,430,465	286,725	40,200	.....	.....	.....	26,000	182,006,076	1902	48.8
1903	2,763,117	100,461,337	17,876	486,637	75,591,256	5,234,475	1,209,371	445,818	2,510,259	5,770,056	278,092	75,375	.....	.....	.....	36,000	194,879,869	1903	51.5
1904	3,599,026	117,080,960	25,476	552,575	78,536,655	5,947,383	1,419,473	637,431	3,385,468	6,508,485	345,834	125,625	.....	.....	.....	40,000	218,204,391	1904	53.7
1905	4,420,987	134,717,580	44,027	634,095	54,960,270	5,765,317	1,472,804	560,963	4,137,098	7,849,896	447,880	251,250	.....	.....	.....	30,000	215,292,167	1905	62.6
1906	6,378,184	126,493,936	53,577	569,753	58,897,311	5,467,967	1,710,768	578,610	4,015,803	8,180,657	536,294	502,500	.....	.....	.....	30,000	213,415,360	1906	59.2
1907	8,118,207	166,095,335	59,875	788,872	61,850,734	8,455,841	2,001,838	756,631	4,344,162	9,982,597	756,226	1,005,000	101	.....	.....	30,000	264,245,419	1907	63.2
1908	8,252,157	178,527,355	50,966	527,987	62,186,447	12,612,295	2,070,145	1,009,278	5,047,038	10,283,357	1,011,180	3,932,900	11,472	169	.....	30,000	285,552,746	1908	62.5
1909	9,327,278	183,170,874	42,388	420,755	65,970,350	14,932,799	1,889,563	1,018,837	6,676,517	11,041,852	1,316,118	2,713,500	18,431	57,143	.....	20,000	298,616,405	1909	61.3
1910	9,723,806	209,557,248	50,830	315,895	70,336,574	12,673,688	1,930,661	1,032,522	6,137,990	11,030,620	1,330,105	3,634,080	20,753	142,857	.....	20,000	327,937,629	1910	64.0
1911	11,107,450	220,449,391	74,709	291,096	66,183,691	10,519,270	1,658,903	1,017,045	6,451,203	12,172,949	1,368,274	12,552,798	13,119	285,307	9,150	20,000	344,174,355	1911	64.0
1912	12,976,232	222,935,044	53,778	243,336	68,019,208	8,535,174	1,671,405	1,031,050	7,116,672	10,845,624	1,751,143	16,558,215	47,007	436,805	205,905	20,000	352,446,598	1912	68.9
1913	13,554,768	248,446,230	47,198	228,080	62,834,356	7,818,130	1,942,009	995,764	7,930,149	11,172,294	2,133,261	25,696,291	130,618	503,616	94,635	20,000	383,547,399	1913	64.7
1914	12,826,579	265,762,535	39,849	214,805	67,020,522	5,033,350	2,738,378	995,764	7,409,792	11,834,802	1,917,802	26,235,403	275,500	643,533	777,038	20,000	403,745,342	1914	65.8
1915	12,029,913	281,104,104	43,898	215,464	68,548,062	4,158,899	3,118,464	995,764	8,202,674	12,386,800	2,487,251	32,910,508	516,120	750,000	262,208	10,000	427,740,129	1915	65.7
1916	10,298,208	300,767,158	50,585	198,123	72,801,110	6,461,706	2,997,178	995,764	8,491,137	13,174,399	2,550,645	40,545,712	796,920	928,581	411,000	25,000	461,493,226	1916	65.2
1917	2,681,870	335,315,601	50,334	205,332	69,000,000	5,965,447	2,898,654	995,764	8,078,843	12,928,955	2,533,417	55,292,770	1,144,737	1,599,455	1,008,750	7,004,973	506,702,902	1917	66.2
1918	8,730,235	355,927,716	35,953	304,741	40,456,182	5,591,620	2,449,069	711,260	8,000,000	13,284,936	2,536,102	63,828,327	1,321,315	2,082,068	2,079,750	7,390,080	514,729,354	1918	69.1
1919	6,614,000	377,719,000	35,000	241,000	25,495,000	6,054,000	2,175,000	234,000	8,735,000	15,428,000	2,616,000	87,073,000	1,183,000	1,841,000	1,501,000	750,000	544,885,000	1919	62.0
1920	7,435,344	443,402,000	34,180	196,937	25,429,600	5,606,116	2,139,777	212,046	7,500,000	17,529,210	2,816,649	163,540,000	1,665,989	2,083,027	1,042,000	14,221,125	694,854,000	1920	63.8
1921	8,368,000	427,183,000	34,400	190,338	29,150,000	5,167,000	2,447,000	200,000	8,000,000	16,958,105	3,699,280	193,397,587	1,747,410	2,354,000	1,255,000	19,913,880	765,065,000	1921	61.7
1922	9,843,000	557,531,000	31,000	179,000	32,966,000	.....	2,042,000	319,000	7,700,000	16,720,000	5,314,000	182,278,000	3,918,000	2,445,000	1,188,000	33,235,000	854,809,000	1922	65.2
1923	10,867,000	732,407,000	34,000	170,000	39,156,000	5,373,000	1,789,000	312,000	8,320,000	19,868,000	5,699,000	149,858,000	3,400,000	3,051,000	1,054,000	37,855,000	1,019,213,000	1923	71.3
1924	13,000,000	710,463,600	.....	170,000	44,000,000	5,750,000	1,666,660	33,330	8,000,000	21,000,000	6,000,000	144,000,000	4,000,000	3,333,330	1,000,000	44,045,000	1,009,461,920	1924	70.3
1925	16,646,000	763,743,000	45,000	318,000	52,448,000	5,960,000	2,000,000	411,000	8,000,000	21,422,000	9,164,000	115,515,000	5,818,000	4,654,000	1,226,000	60,196,000	1,067,566,000	1925	71.5
1926	23,500,000	766,504,000	45,000	350,000	62,000,000	5,600,000	1,820,000	600,000	8,000,000	21,700,000	11,000,000	90,700,000	6,500,000	5,500,000	1,250,000	83,863,000	1,096,690,000	1926	69.9
1927	26,368,000	901,129,000	47,000	477,000	77,018,000	5,342,000	1,789,000	663,000	8,032,000	27,459,000	10,127,000	64,121,000	8,630,000	5,380,000	1,267,000	6,360,000	1,262,582,000	1927	71.4
1928	30,773,000	901,474,000	46,000	624,000	84,704,000	5,492,000	1,944,000	630,000	8,741,000	32,118,000	12,006,000	50,151,000	9,070,000	7,684,000	1,842,000	24,000	1,324,733,000	1928	68.0
1929	34,758,000	1,007,323,000	45,000	1,117,000	99,507,000	4,988,000	2,023,000	704,000	8,747,000	39,279,000	13,422,000	44,688,000	9,391,000	8,716,000	1,868,000	58,000	1,485,867,000	1929	67.8
1930	41,624,000	898,011,000	59,000	1,522,000	125,555,000	4,904,000	1,950,000	1,182,000	8,292,000	41,729,000	12,449,000	39,530,000	9,002,000	9,419,000	1,996,000	56,000	1,410,037,000	1930	63.7
1931	47,600,000	850,275,000	145,000	1,584,000	161,900,000	4,340,000	1,990,000	1,643,000	8,190,000	35,500,000	10,106,000	33,039,000	11,608,000	9,769,000	1,946,000	50,000	1,370,299,000	1931	62.1
1932	54,160,000	781,845,000	210,000	1,057,000	155,250,000	4,115,000	1,630,000	1,617,000	8,430,000	39,000,000	9,900,000	32,805,000	13,000,000	10,100,000	1,790,000	60,000	1,305,563,000	1932	59.9
1933	50,971,000	905,656,000	[2]	194,000	147,077,000	3,865,000	1,935,000	1,721,000	8,543,000	38,513,000	13,925,000	33,905,000	13,955,000	9,560,000	1,591,000	907,000	1,423,649,000	1933	63.6
[1]1934	60,000,000	910,051,000	[2]	240,000	166,000,000	3,600,000	2,000,000	2,100,000	8,800,000	41,800,000	14,000,000	37,000,000	14,100,000	10,900,000	1,450,000	1,600,000	1,492,041,000	[1]1934	61.0

Year	Sarawak	Sakhalin	Iraq	France	Czecho-Slovakia	Bolivia
1928	5,223,000	677,000	713,000	512,000	94,000	.....
1929	5,290,000	1,134,000	798,000	535,000	93,000	.....
1930	4,907,000	1,805,000	913,000	523,000	157,000	56,000
1931	3,689,000	2,240,000	900,000	517,000	185,000	225,000
1932	2,400,000	2,800,000	910,000	528,000	190,000	44,000
1933	2,288,000	2,600,000	1,200,000	[2].....	[2].....	[2].....
1934	2,000,000	2,600,000	4,000,000	[2].....	[2].....	[2].....

Year	Venezuela	Persia	Colombia	Ecuador
1927	63,134,000	39,688,000	15,002,000	537,000
1928	105,749,000	43,461,000	19,897,000	1,084,000
1929	137,472,000	42,145,000	20,385,000	1,381,000
1930	136,669,000	45,828,000	20,346,000	1,553,000
1931	118,770,000	44,300,000	18,237,000	1,751,000
1932	116,300,000	49,470,000	16,417,000	1,595,000
1933	120,882,000	49,581,000	13,157,000	1,623,000
1934	139,000,000	52,000,000	17,000,000	1,800,000

[1]Figures for foreign countries for 1934 are as reported by V. R. Garfias and R. V. Whetsel, Foreign Oil Department, Henry L. Doherty & Co., New York, with closing portion of year estimated. [2]Included under others.

there is any one trend that characterizes Soviet industry and transportation today that trend is motorization.

And so, regardless of one's ideas of Soviet sociology and its probable economic success, he must admit Russia has taken industrial strides in the last 10 years never before equalled by any other nation in a similar length of time. Government plans call not only for a continuation of this expansion, but call for expansion on an even more titanic scale. This is another way of saying that it is bound to use more oil and exert more strenuous efforts to produce more in the years to come. The wildcat drilling and attendant refinery throughput enlargement necessarily attendant upon such a program are more or less obvious.

Venezuela, ranking third among producing nations in 1934 with a total yield of 139,000,000 barrels, knows that the pressure drop in East Texas field and other too flush areas, if one may use the term, may cut the leash that has held field and wildcat drilling in check there. For the Venezuelan producer's comfort, excessive withdrawals from East Texas have rendered that area so sensitive that many of the wells can be killed today by pumping from two to 10 barrels of fresh water in the tubing. Iraq, which also has had a retarding effect upon Venezuelan development, probably will continue to partially nullify the latter's importance in the European market, though not to the extent of checking exploratory drilling on prospects in the vast, unexplored realms of South America's greatest producing nation.

Another most concrete and effective inducement to wildcatting in Venezuela is that it was one of the many nations sending in the report: "No new fields were discovered in 1934."

The Rumanian producer, who contributed 63,500,000 barrels to the world's output in 1934, finds himself in a precarious situation which, while appalling to himself, has certain bright aspects for other competitors in international oil.

The tax situation in Rumania places the producer at a great disadvantage in competing with other producing countries, notably Iraq. The only apparent way to beat the game is by flooding the market, depending upon disposing of great quantities of oil at a very small profit margin per barrel to keep his head above water. This may explain the very evident gain in footage drilled in Roumania during 1934.

Excess withdrawals from reservoirs in Rumania to meet an unhealthy system of penalties im-

(Continued on page 201)

In presenting this

While much of the information contained in the following pages has lain in the files of such bureaus, associations and companies for many years, it required a great deal of work to develop it to the form necessary for publication.

The work has required literally thousands of letters, special forms to carry the information, investigation into files, published material, etc. The editors realize that it is not complete, but at the same time would call to the attention of the reader that never before has this amount of specific data been presented under one cover.

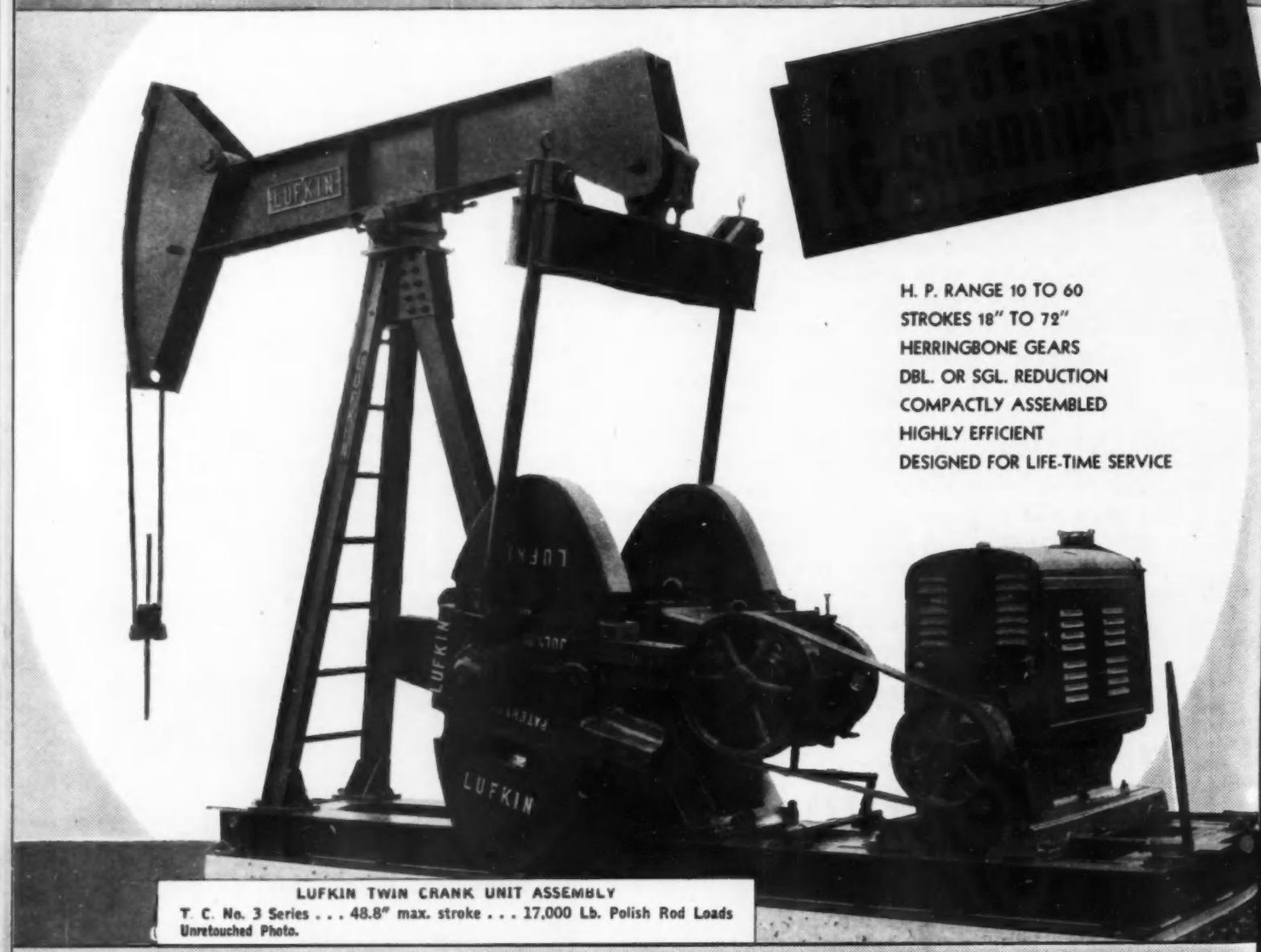
Some companies holding the key to the information on certain countries, either through necessities of policy or lack of understanding as to the scope and purpose of this survey, did not give the same co-operation extended by other companies. It is our hope that when this data is brought up-to-date in the future we may have the co-operation of all.

Nevertheless, this information is presented with the knowledge that a most important step forward has been taken and that the information presented will be of value for years to come.

***Editors*, THE OIL WEEKLY**

the first World Oil Survey of* THE OIL WEEKLY, *the editors wish to express their deep appreciation of the assistance rendered by various governmental bureaus, associations, oil companies and individuals.

Twin Crank Units!



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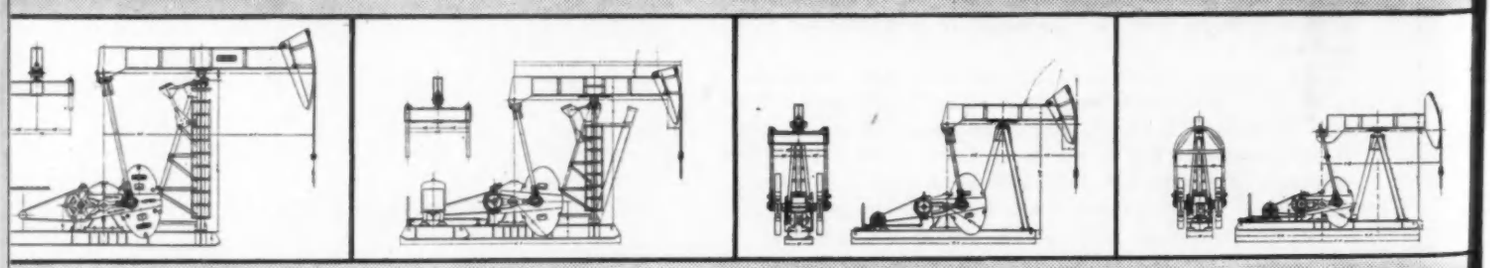

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WORLD OIL SURVEY

North America

Including

CANADA
CUBA
MEXICO
and
NICARAGUA

Cuichapa well of Richmond Petroleum Company on the Isthumus of Tehuantepec concession, Mexico. It is typical of much of the drilling rigs used in Mexico, many of which are of very modern design.

Oil and Gas Fields of Canada

Province of Alberta

Barnwell (Gas)

Location: Province of Alberta; Twp. 9, Range 17. **Discovery Data:** Discovery well drilled in 1918. **Geology:** Anticline. **Producing Formations:** Gas comes from Bow Island sand of Upper Cretaceous age, 2183 to 2225 ft. **Deepest Hole:** 2617 ft; zone tested—Upper Cretaceous. **Production History:** 1445 million cu. ft. to end of 1933. **Principal Lease Holders:** Canadian Western Natural Gas, Light, Heat & Power Co.

Bow Island (Gas)

Location: Twps. 10 and 11, Ranges 11 and 12, west of the 4th meridian, southern part of the Province of Alberta, approximately 70 miles east of the City of Lethbridge, some 50 miles west of the City of Medicine Hat and 30 miles north of the Foremost gas field. **Discovery Data:** First well, Bow Island 1, drilled by Canadian Pacific Railway Co., completed in 1909; depth 1915 feet; initial open flow was 8,500,000 cu. ft. per 24 hours. **Geology:** Structural nose (Dominion Bureau of Statistics and Geological Survey of Canada lists it as a dome). **Producing Formations:** Commercial gas obtained in Bow Island sandstone in the Lower Colorado formation, Upper Cretaceous age, at from 1800 to 2200 feet. **Extent of Development:** 28 gas wells were drilled, of which 5 were failures as of June 30, 1934. **Deepest Hole:** Northwest Co. Bow Island Well, completed in 1926 by the Northwest Co., subsidiary of the Imperial Oil Co.; it was located in the center of the field and was drilled to a depth of 4060 ft., and stopped in the Three Forks formation of Devonian age. The well was abandoned upon completion, no commercial production being obtained. **Productive Area:** Area proved for gas production covers approximately 30 square miles; field defined on all sides as of June 30, 1934. **Production History:** 33,851 million cu. ft. to end of 1933; wells exhausted in 1928, repressuring used from 1930-1933. **Present Activity:** The field is practically depleted and was used in 1934 for storing waste gas from the Turner Valley field; seven wells were being repressured June 30, 1934; three of them are being used for observation purposes. **Principal Lease Holder:** Canadian Western Natural Gas, Light, Heat & Power Co. Ltd.

Brooks (Oil and Gas)

Location: Province of Alberta; Twp. 18, Range 14, west of the 4th meridian. **Discovery Data:** In 1910 the Canadian Pacific Railway drilled two wells at Brooks; No. 1 well at 2,795 ft. produced 20,000 cu. ft.; No. 2 well, a small flow at 1,379 ft. **Geology:** Not determined as of June 30, 1934. **Producing Formations:** Gas horizon encountered from 1240 to 1540 ft. in Milk River and Upper Alberta shale of Upper Cretaceous. **Extent of Development:** 5 wells to June 30, 1934. **Deepest Hole:** 2,795 ft; zone tested—Lower Cretaceous. **Productive Area:** Undetermined. **Production History:** 787 million cu. ft. to the end of 1933. **Present Activity:** None as of June 30, 1934. **Principal Lease Holders:** Canadian Western Natural Gas, Light, Heat & Power Co. Ltd.

Cypress Hills (Gas)

Location: Province of Alberta, 40 miles south of Medicine Hat gas field, 200 miles east of Turner Valley gas and oil field, 50 miles east of Bow Island gas field. **Discovery Data:** Outcroppings, indicating structural elevation; Eagle Butte Oil Co. Ltd.'s Eagle Butte 1 was discovery well. **Geology:** Uncertain, but regarded as terrace in 1934. **Producing Formations:** Gas sand; Cardium sand of Upper Cretaceous; one producing strata above the lime. **Extent of Development:** 2 failures as of June 30, 1934; No. 1 found gas which was drowned out by water; No. 2 drilled through same formations on location six miles east of No. 1, but found no gas. **Deepest Hole:** Eagle Butte No. 2, drilled by Eagle Butte Oil Co. Ltd. to depth of 4,722 ft., abandoned October, 1931. **Productive Area:** No productive area proven; government engineers state further prospecting justified by results of drilling to date. **Production History:** None. **Present Activity:** No rigs running in field as of June 30, 1934; complete outfit at site of No. 2 well. **Principal Lease Holders:** Eagle Butte Oil Co. Ltd. has done all drilling to date; acreage held by Cypress Oil Co. Ltd.

Fabyan (Oil and Gas)

Location: Province of Alberta; Twps. 44 and 45, Ranges 7 and 8, west of the 4th meridian. **Discovery Data:** Imperial Oil Co.'s Fabyan 1 at 1,870 ft. struck a gas flow of 10 million cu. ft; Maple Leaf 1 on the west flank encountered a gas flow of 2,500 million cu. ft. at 1,705 to 1,720 ft. **Geology:** Anticline. **Producing Formations:** Production from Viking sand in Alberta shale of Upper Cretaceous, generally found at 1,770 to 1,870 ft. **Extent of Development:** 4 wells to end of 1933. **Deepest Hole:** 2,730 ft; zone tested—Devonian. **Productive Area:** Undetermined. **Production History:** 891 million cu. ft. to end of 1933. **Principal Lease Holders:** Imperial Oil Co., Maple Leaf Oil Co., Fabyan Petroleum Co.

Foremost (Oil and Gas)

Location: Province of Alberta, Sec. 24, Twp. 6, Range 11, to Sec. 29, Twp. 5, Range 10, west of 4th meridian, 30 miles south of Bow Island gas field and 8 miles southeast of Foremost station on the Canadian Pacific Railway line from Letbridge to Many Berries. **Discovery Data:** First gas well was United Oils Ltd.'s United 3, which yielded gas at the estimated rate of 7 million cu. ft. per day from 3,716 ft. in 1916, but was not completed due to faulty water shut-off; first commercial producer was Canadian Western Natural Gas, Light, Heat & Power Co.'s Foremost 1, which spudded in April, 1923, and was completed at 2191 ft. for 26 million cu. ft. per day. **Geology:** Anticline. **Producing Formations:** Gas horizon is (Bow Island sand) Alberta shale, Upper Cretaceous, found at from 2,015 to 2,250 ft. **Extent of Development:** 8 commercial gas wells and 2 failures up to June 30, 1934. **Deepest Hole:** United Oil Ltd.'s United 3, depth 3,716 ft.; drilling stopped in 1916 in the Madison formation of the Mississippian age when well was drowned out by a heavy flow of water; initial production was estimated at 7 million cu. ft. per day. **Productive Area:** Field defined on all sides; area proved for gas production estimated at 15 square miles. **Production History:** Field is held in as a reserve. **Present Activity:** None. **Principal Lease Holders:** The Canadian Western Natural Gas, Light, Heat & Power Co. Ltd., United Oils Ltd.

Keho (Oil and Gas)

Location: Province of Alberta; field lies north of Scabby Butte. **Discovery Data:** Hudson's Bay Oil and Gas Co.'s Keho 1 drilled in Twp. 11, Range 22, west of the 4th Meridian, total depth 4919 ft., negligible production from 3860 ft. **Geology:** Not determined. **Producing Formations:** Mixed base oil comes from Keho-Bow Island sand, Upper Cretaceous age, found at 3800 ft. **Extent of Development:** One well as of June 30, 1934. **Deepest Hole:** Hudson's Bay Oil & Gas Co. well, drilled to 4919 ft.; zone tested—Devonian. **Productive Area:** Undetermined. **Production History:** 803 barrels to end of 1933. Gravity 30° Be. Production as of

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Oil and Gas Fields of Canada

Province of Alberta

Barnwell (Gas)

Location: Province of Alberta; Twp. 9, Range 17. **Discovery Data:** Discovery well drilled in 1918. **Geology:** Anticline. **Producing Formations:** Gas comes from Bow Island sand of Upper Cretaceous age, 2183 to 2225 ft. **Deepest Hole:** 2617 ft; zone tested—Upper Cretaceous. **Production History:** 1445 million cu. ft. to end of 1933. **Principal Lease Holders:** Canadian Western Natural Gas, Light, Heat & Power Co.

Bow Island (Gas)

Location: Twps. 10 and 11, Ranges 11 and 12, west of the 4th meridian, southern part of the Province of Alberta, approximately 70 miles east of the City of Lethbridge, some 50 miles west of the City of Medicine Hat and 30 miles north of the Foremost gas field. **Discovery Data:** First well, Bow Island 1, drilled by Canadian Pacific Railway Co., completed in 1909; depth 1915 feet; initial open flow was 8,500,000 cu. ft. per 24 hours. **Geology:** Structural nose (Dominion Bureau of Statistics and Geological Survey of Canada lists it as a dome). **Producing Formations:** Commercial gas obtained in Bow Island sandstone in the Lower Colorado formation, Upper Cretaceous age, at from 1800 to 2200 feet. **Extent of Development:** 28 gas wells were drilled, of which 5 were failures as of June 30, 1934. **Deepest Hole:** Northwest Co. Bow Island Well, completed in 1926 by the Northwest Co., subsidiary of the Imperial Oil Co.; it was located in the center of the field and was drilled to a depth of 4060 ft., and stopped in the Three Forks formation of Devonian age. The well was abandoned upon completion, no commercial production being obtained. **Productive Area:** Area proved for gas production covers approximately 30 square miles; field defined on all sides as of June 30, 1934. **Production History:** 33,851 million cu. ft. to end of 1933; wells exhausted in 1928, repressuring used from 1930-1933. **Present Activity:** The field is practically depleted and was used in 1934 for storing waste gas from the Turner Valley field; seven wells were being repressured June 30, 1934; three of them are being used for observation purposes. **Principal Lease Holder:** Canadian Western Natural Gas, Light, Heat & Power Co. Ltd.

Brooks (Oil and Gas)

Location: Province of Alberta; Twp. 18, Range 14, west of the 4th meridian. **Discovery Data:** In 1910 the Canadian Pacific Railway drilled two wells at Brooks; No. 1 well at 2,795 ft. produced 20,000 cu. ft.; No. 2 well, a small flow at 1,379 ft. **Geology:** Not determined as of June 30, 1934. **Producing Formations:** Gas horizon encountered from 1240 to 1540 ft. in Milk River and Upper Alberta shale of Upper Cretaceous. **Extent of Development:** 5 wells to June 30, 1934. **Deepest Hole:** 2,795 ft; zone tested—Lower Cretaceous. **Productive Area:** Undetermined. **Production History:** 787 million cu. ft. to the end of 1933. **Present Activity:** None as of June 30, 1934. **Principal Lease Holders:** Canadian Western Natural Gas, Light, Heat & Power Co. Ltd.

Cypress Hills (Gas)

Location: Province of Alberta, 40 miles south of Medicine Hat gas field, 200 miles east of Turner Valley gas and oil field, 50 miles east of Bow Island gas field. **Discovery Data:** Outcroppings, indicating structural elevation; Eagle Butte Oil Co. Ltd.'s Eagle Butte 1 was discovery well. **Geology:** Uncertain, but regarded as terrace in 1934. **Producing Formations:** Gas sand; Cardium sand of Upper Cretaceous; one producing strata above the lime. **Extent of Development:** 2 failures as of June 30, 1934; No. 1 found gas which was drowned out by water; No. 2 drilled through same formations on location six miles east of No. 1, but found no gas. **Deepest Hole:** Eagle Butte No. 2, drilled by Eagle Butte Oil Co. Ltd. to depth of 4,722 ft., abandoned October, 1931. **Productive Area:** No productive area proven; government engineers state further prospecting justified by results of drilling to date. **Production History:** None. **Present Activity:** No rigs running in field as of June 30, 1934; complete outfit at site of No. 2 well. **Principal Lease Holders:** Eagle Butte Oil Co. Ltd. has done all drilling to date; acreage held by Cypress Oil Co. Ltd.

Fabyan (Oil and Gas)

Location: Province of Alberta; Twps. 44 and 45, Ranges 7 and 8, west of the 4th meridian. **Discovery Data:** Imperial Oil Co.'s Fabyan 1 at 1,870 ft. struck a gas flow of 10 million cu. ft; Maple Leaf 1 on the west flank encountered a gas flow of 2,500 million cu. ft. at 1,705 to 1,720 ft. **Geology:** Anticline. **Producing Formations:** Production from Viking sand in Alberta shale of Upper Cretaceous, generally found at 1,770 to 1,870 ft. **Extent of Development:** 4 wells to end of 1933. **Deepest Hole:** 2,730 ft; zone tested—Devonian. **Productive Area:** Undetermined. **Production History:** 891 million cu. ft. to end of 1933. **Principal Lease Holders:** Imperial Oil Co., Maple Leaf Oil Co., Fabyan Petroleum Co.

Foremost (Oil and Gas)

Location: Province of Alberta, Sec. 24, Twp. 6, Range 11, to Sec. 29, Twp. 5, Range 10, west of 4th meridian, 30 miles south of Bow Island gas field and 8 miles southeast of Foremost station on the Canadian Pacific Railway line from Letbridge to Many Berries. **Discovery Data:** First gas well was United Oils Ltd.'s United 3, which yielded gas at the estimated rate of 7 million cu. ft. per day from 3,716 ft. in 1916, but was not completed due to faulty water shut-off; first commercial producer was Canadian Western Natural Gas, Light, Heat & Power Co.'s Foremost 1, which spudded in April, 1923, and was completed at 2191 ft. for 26 million cu. ft. per day. **Geology:** Anticline. **Producing Formations:** Gas horizon is (Bow Island sand) Alberta shale, Upper Cretaceous, found at from 2,015 to 2,250 ft. **Extent of Development:** 8 commercial gas wells and 2 failures up to June 30, 1934. **Deepest Hole:** United Oil Ltd.'s United 3, depth 3,716 ft.; drilling stopped in 1916 in the Madison formation of the Mississippian age when well was drowned out by a heavy flow of water; initial production was estimated at 7 million cu. ft. per day. **Productive Area:** Field defined on all sides; area proved for gas production estimated at 15 square miles. **Production History:** Field is held in as a reserve. **Present Activity:** None. **Principal Lease Holders:** The Canadian Western Natural Gas, Light, Heat & Power Co. Ltd., United Oils Ltd.

Keho (Oil and Gas)

Location: Province of Alberta; field lies north of Scabby Butte. **Discovery Data:** Hudson's Bay Oil and Gas Co.'s Keho 1 drilled in Twp. 11, Range 22, west of the 4th Meridian, total depth 4919 ft., negligible production from 3860 ft. **Geology:** Not determined. **Producing Formations:** Mixed base oil comes from Keho-Bow Island sand, Upper Cretaceous age, found at 3800 ft. **Extent of Development:** One well as of June 30, 1934. **Deepest Hole:** Hudson's Bay Oil & Gas Co. well, drilled to 4919 ft.; zone tested—Devonian. **Productive Area:** Undetermined. **Production History:** 803 barrels to end of 1933. Gravity 30° Be. Production as of

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CANADA—Province of Alberta—*Continued*

November 14, 1934, was 2 barrels per day. **Present Activity.** None. **Principal Lease Holders:** Hudson's Bay Oil & Gas Co.

Kinsella (Oil and Gas)

Location: Province of Alberta; field lies about 13 miles southeast of Viking, and near Kinsella. **Discovery Data:** McDonald well drilled on Sec. 29 Twp. 48, Range 10, west of the 4th meridian, by the Duluth Syndicate. Well came in at 2080 ft. with a flow of 29 million cu. ft. **Geology:** Strata are horizontal or nearly horizontal. **Producing Formations:** Gas horizon, encountered at from 2083 to 2184 feet, is in Viking sand of Upper Cretaceous. **Extent of Development:** 3 wells to June 30, 1934. **Deepest Hole:** 2184 ft.; zone tested—Upper Cretaceous. **Productive Area:** Undetermined. **Production History:** Gas not used yet. Two wells were drilled in 1932 by the Northwestern Utilities Ltd. These wells produced 7 million cu. ft. and 19 million cu. ft. respectively. **Present Activity:** None. **Principal Lease Holder:** Duluth Syndicate.

Medicine Hat (Oil and Gas)

Location: Province of Alberta; Twps. 12 and 13, Ranges 5 and 6, west of the 4th meridian. **Discovery Data:** In 1883 Canadian Pacific Railway encountered gas when drilling for water at Carlstadt. Non-useable gas obtained at 650 ft. as result of Sir William Van Horne's recommendation that the railway drill in 1891. Shallow, non-commercial gas sand at 700 ft. in 1901. The city of Medicine Hat found dry gas at 1010 feet in 1905. First commercial production when C. P. Railway drilled to Medicine Hat gas sands at 1000 feet in 1908. **Geology:** Anticline. **Producing Formations:** Gas production at 1000 to 1300 ft. from (Medicine Hat sand) Alberta shale, Upper Cretaceous. **Deepest Hole:** 3940 ft.; zone tested—Devonian. **Productive Area:** Undetermined. **Production History:** 21,712 million cu. ft. to end of 1933. **Principal Lease Holders:** Canadian Pacific Railway Co., Canada Cement Co., City of Medicine Hat, Canada Western Power & Fuel Co.

Range (Oil and Gas)

Location: Southern part of the Province of Alberta; field lies in the Milk River area. **Discovery Data:** Discovered in 1925. **Geology:** Monocline with accumulation against igneous barrier. **Producing Formations:** Gas comes from Sunburst and Lower Cretaceous sands of Lower Cretaceous, encountered at 2530 and 2720 ft. **Deepest Hole:** 2918 ft.; zone tested—Mississippian. **Production History:** 185 million cu. ft. to end of 1933. **Principal Lease Holders:** Range Oil & Gas Company, Ltd., The Northwest Company, Ltd.

Red Coulee (Border) (Oil)

Location: Province of Alberta; Twp. 1, Ranges 16 and 17, west of 4th meridian; 95 miles from Lethbridge; 230 miles from Calgary; 150 miles from Great Falls, Montana. **Discovery Data:** Structure first mapped in 1922; first well completed in 1923 by Imperial Oil Ltd. with only show of oil; first commercial or discovery well drilled in, Vanalta 1, Vanalta Oils Ltd., 1929, depth 2491 ft., five million cu. ft. of gas and 40 barrels of crude oil; gravity of oil 30.2 to 30.5 A.B. **Geology:** Surface geology shows a "nose" on northwest flank of Sweetgrass Arch. Dominion Bureau of Statistics lists it as "terrace". **Producing Formations:** "Vanalta Sand", which is either basal (Lower Cretaceous), Kootenai or upper Ellis (Jurassic). Accumulation due either to lenticular nature of sand or oil-water level in same. Average completion depth, 2420-2470 ft. **Extent of Development:** 20 wells completed from discovery of field to June 30, 1934; all wells obtained a small volume of gas at various depths; 15 failures; no completions in first 6 months of 1934. **Deepest Hole:** Capitol 1, Capitol Oils, Ltd., 2752 ft.; suspended 1930; located L. S. D. Sec. 21, Twp. 1, Range 16, west 4th meridian; tested—Madison Limestone. No showings of commercial value. **Productive Area:** Estimated at 320 acres on Nov. 1, 1934. Commercial production obtained by wells drilling in Sec. 4, Twp. 1, Range 16, west of 4th meridian. **Production History:** 188,379 barrels (approx.) to end of 1933; 11,501 barrels in first 6 months of 1934; 56 barrels per day as of June 20, 1934, from 5 wells; 29° A.P.I. is gravity of oil produced. **Present Activity:** One cable tool rig drilling in November, 1934. **Principal Lease Holders:** Vanalta Oils, Ltd., Northwest Co., Ltd., Holgar Petroleum Co., Ltd.

Ribstone (Oil and Gas)

Location: Province of Alberta; Twps. 45, 46, 47 and 48, Range 1, west of the 4th meridian. Twp. 46, Range 2 west of the 4th meridian; in Turner Valley vicinity; close to Alberta-Saskatchewan boundary. **Discovery Data:** First productive well, Meridian No. 1, struck gas, 30 million cu. ft., at 1820 ft. At 1833 ft. considerable 14.5° Be oil was obtained. Well, drilled on west flank of structure by Okalta Oils, Ltd., was completed in 1928. **Geology:** Strata are horizontal or nearly horizontal. **Producing Formations:** Asphalt base oil, found at from 1685 to 3489 ft., comes from Meridian sand of Lower Cretaceous. **Deepest Hole:** 3489 ft.; zone tested—Devonian. **Production History:** 15,074 barrels to end of 1933. Gravity—Maximum 15.3° Be. Minimum 11.9° Be. **Principal Lease Holders:** Meridian Oils, Ltd., Northwest Co., Ltd.

Skiff (Oil and Gas)

Location: Province of Alberta; part of Twps. 5 and 6, Ranges 13, 14 and 15, west of the 4th meridian, in the vicinity of the town of Skiff. **Discovery Data:** Devenish Petroleum, Ltd's. No. 1 well drilled in 1926 at 3080 ft. encountered in the Ellis strata 18.2° Be. oil. **Geology:** Accumulation possibly due to both anticlinal and monoclinal structure. **Producing Formations:** Mixed base oil from Ellis sandstone of the Jurassic, generally found at from 3050 to 3080 ft. **Extent of Development:** 5 wells as of June 30, 1934. **Deepest Hole:** 3295 ft.—zone tested—Mississippian. **Production History:** 5914 barrels to end of 1933. Gravity of oil, 20° Be. **Principal Lease Holders:** Devenish Petroleum, Ltd., Dauntless Oils, Ltd.,

Turner Valley (Gas and Oil Field)

Location: In the foothills belt of the Province of Alberta, 35 miles southwest of the city of Calgary. The nearest productive field of any importance is the Kevin-Sunburst Field in Toole County, Montana. This latter field lies about 200 miles southeast of Turner Valley. **Discovery Data:** Stories of oil covering the surface of the water of little lakes and wells in the foothills led to a project of drilling for oil in which Messrs. W. S. Herron, W. A. Dingman and Eugene Coste were the chief parties interested. Drilling was commenced in January, 1913. On May 14, 1914, oil was struck at 2700 ft. A number of wells were drilled in 1913-14, some of which found oil and gas, but the production was small and the field remained a doubtful success until 1924, when Royalite Oil Co.'s No. 4 well was completed with a production of 20,000,000 cu. ft. of gas and 550 barrels of 73° crude naphtha per day from 3740 ft. **Geology:** The structure is a large strongly developed anticline with a certain amount of faulting and with a deep, narrow syncline along what would normally be the axis, thus giving the structure two minor axes, one on each side of a syncline. This folding is underlaid by a low-angle thrust fault that outcrops to the east. The faults within the field are known to have steep dips and are believed to be subsidiary to and join the low-angle thrust at depth. **Producing Formations:** Paleozoic—The main productive horizon in the field is the upper part of the Madison Limestone. This is encountered at depths from 3220 ft. to 6000 ft. and produces gas which yields naphtha having a gravity as high as 78° Baume. In some wells a lower horizon was found which yielded a naphtha of lower gravity and less sulphur content than the higher zone. Jurassic—Some gas and crude oil of about 52° gravity is produced from this formation. Lower Cretaceous—Yields gas and crude oil of 54° to 55° Baume in a few wells. The Dominion Bureau of Statistics and the Geological Survey of Canada outline the producing formations of Turner Valley as follows: First: an

CANADA—Province of Alberta—*Continued*

oil and gas producing limestone of the Mississippian age with a depth varying from a minimum of 3740 feet to a maximum of 6723 feet. Oil therefrom is paraffin base with a weighted gravity of 63° Be. These sources state there are several producing sands in the Blairmore formation: (a) Stockmens sand, located about 100 ft. below the top of the Blairmore and producing a small amount of gas; (b) McDougall-Segur sands, 200 ft. below the top of the Blairmore and producing 54° to 55° Be. oil; (c) Home sand, located 875 ft. stratigraphically below the top of the Blairmore, productive at 4560 ft., yielding 44° to 45° Be. oil; (d) Dalhousie sand, located at the base of the Blairmore, yielding at 4810 ft. oil of about 52° Be. **Extent of Development:** Up to June 30, 1934, there had been 163 tests drilled, 99 producing gas and naphtha, 3 producing gas, naphtha and crude oil, 9 producing crude oil, and 52 abandoned or drilling suspended. **Deepest Hole:** McLeod Oil Co.'s No. 4. Commenced in 1928, completed in 1929, and deepened in 1932. This well was started in the Upper Cretaceous (Benton) shales, reached the top of the Paleozoic limestone at 3730 ft. and the top of the underlying Banff shales at 5240 ft. At 6012 ft. the well again entered the Benton shales. At its final depth of 7751 ft. the well was still believed to be in the Benton. (Deep wells pass through a low-angle fault from Mississippian or Devonian into Cretaceous.) **Productive Area:** Approximately 9000 acres as of July, 1934. Rough outline: 13 miles long and one mile wide, lying within Twps. 19 and 20, Ranges 2 and 3, west of 5th meridian. **Production History:** Crude oil is obtained from the zones above the Madison Lime; naphtha by passing gas from the Madison through separators and absorption plant product by processing the gas after it has passed through the separators. Production to end of 1933: Crude oil, 367,153 bbls.; naphtha, 6,311,897 bbls.; absorption plant product, 185,781 bbls.; gas, 607,235,298,000 cu. ft. Six months of 1934: Crude oil, 12,199 bbls.; naphtha, 395,269 bbls.; absorption plant product, 224,813 barrels; gas, 44,000 million cu. ft. For the month of May, 1934, the field had a daily output of 3267 bbls. **Present Activity:** As of June 30, 1934: 17 wells drilling, 1 rigging up. Three of the drilling wells are rotary. **Principal Lease Holders:** Royalite Oil Company, McLeod Oil Company, Dalhousie Oil Co., Foothills Oil & Gas Co.

Twin River (Oil and Gas)

Location: Province of Alberta; field lies west of the Red Coulee field and on the east flank of the Alberta syncline. **Discovery Data:** Nordon Corp. drilled structure test wells; Parco-Nordon 1, drilled to 4146 ft. in Twp. 1, Range 20 west of the 4th meridian, in 1931, was the discovery well. Initial production estimated at 25 barrels oil and ½ million cubic feet of gas. **Geology:** Structure regarded as an elongated dome. **Production Formations:** Mixed base oil production comes from the limestone of Mississippian age found at from 3,940 to 4,146 ft. **Extent of Development:** 2 wells as of June 30, 1934. **Deepest Hole:** 4,146 ft.; zone tested—Mississippian. This well is also the discovery well. Both tests drilled so far appear to be on southern end of structure. Data not sufficient to estimate productive area. **Production History:** 1,108 barrels to end of 1933; gravity 32° Baume. Production in first six months of 1934 negligible. **Present Activity:** None in November, 1934. **Principal Lease Holders:** Nordon Corp. Ltd.

Viking (Gas)

Location: Province of Alberta; north of the town of Viking on the Canadian National Railway main line. **Discovery Data:** No. 1 well drilled to 2345 ft. in 1914 by Northern Alberta Natural Gas Development Co., Ltd., was the discovery well. Initial open flow, 9 million cu. ft. Taken over by Northwestern Utilities, Ltd., in 1923. **Geology:** Anticline. **Producing Formations:** Gas comes from Viking sand in Alberta shale of Upper Cretaceous—generally found at 2100 to 2225 ft. **Extent of Development:** 23 wells to end of 1933. **Deepest Hole:** Hudson's Bay Oil & Gas Co.'s Hudson's Bay 1, drilled to 3039 ft. in 1928 for an initial production of 9750 cu. ft. of gas. Zone tested: Devonian. **Productive Area:** Estimated at 25 square miles Nov. 8, 1934. **Production History:** 23,771 million cu. ft. to end of 1933; 1526 million cu. ft. during first 6 months of 1934. **Present Activity:** 3 standard rigs (all idle Nov. 8, 1934, due, probably, to weather). **Principal Lease Holders:** Northwestern Utilities, Ltd., Hudson's Bay Oil & Gas Company, Ltd.

Wainwright (Oil and Gas)

Location: Central part of Province of Alberta; Twps. 44 and 45, Range 7. **Geology:** Anticline. **Producing Formations:** Asphalt base oil from sandstone in Lower Cretaceous generally found at from 2100 to 2300 ft. **Extent of Development:** 11 wells to end of 1933. **Deepest Hole:** 2698 feet; zone tested—Devonian. **Production History:** 57,883 barrels to end of 1933. Output 6 months ending June, 1934, 4168 barrels. Gravity maximum 23.6°, minimum 17.6°. **Principal Lease Holders:** Imperial Oil, Ltd., Meridian Oils, Ltd., Peninsula Petroleums, Ltd., Edmonton-Wainwright Oils, Ltd., Hargal Oils, Ltd., Sasko-Wainwright Oils, Ltd., Fabyan Petroleums, Ltd., Maple Leaf Oil Co., Ltd., Hudson's Bay Oil & Gas Co., Ltd.

Province of British Columbia

Flathead Valley (Southeast Kootenay) (Prospect)

Location: Province of British Columbia; southeast corner of the County of Kootenay. Field is immediately north of the International boundary, between Montana and British Columbia. The nearest oil fields are in Montana and in Alberta, Canada. **Discovery Data:** Oil and gas seepages. No well has yet been completed. **Geology:** Domal Anticline. Precambrian overthrust on to rocks varying in age from Cretaceous to Devonion. Precambrian very hard siliceous limestones and dolomites. Overthrust not yet pierced, but at apex believed to be between 2000 and 2500 ft. thick, possibly more. Depth of production unknown, but believed to be close to overthrust fault. Gravity of oil showings, 45° to 50°. **Extent of Development:** 3 wells commenced. No well drilled to production as of June 30, 1934. **Deepest Hole:** Crows Nest Oils Ltd. Non-Personal Liability, located on flank, shut down at 3265 feet, as of June 30, 1934. **Productive Area:** Undetermined. **Production History:** None as of June 30, 1934. **Present Activity:** Columbia Oils Ltd., Non-Personal Liability, one rig, cable tools. **Principal Lease Holders:** Amalgamated Oil Company Ltd., Non-Personal Liability, Columbia Oils Ltd., Non-Personal Liability, Crows Nest Oils, Ltd., Non-Personal Liability.

Province of New Brunswick

Stoney Creek (Oil and Gas)

Location: Province of New Brunswick; Alberta County; field lies 8 miles south of Moncton and extends west from Petitcodiac River. **Discovery Data:** Evidences of oil date back to 1849, when first deposits of albertite were operated. Shallow wells drilled in 1859 gave small showings of oil and gas. From 1876 to 1879 wells were drilled in which oil and gas were struck, but these were abandoned owing to low price of oil. Drilling operations started in 1909 resulted in the discovery of promising quantities of oil and gas, and by 1911 this field was established as a commercial proposition. **Geology:** Accumulation due to anticline and monocline fault. **Producing Formations:** Main horizon is a gas and oil producing sandstone of the Mississippian, found generally at from 1500 to 3200 ft. **Extent of Development:** 63 wells drilled to end of 1933. **Deepest Hole:** 4500 ft. A few

CANADA—Province of New Brunswick—*Continued*

wells have penetrated pre-Carboniferous igneous rocks (Pre-Cambrian). **Productive Area:** Oil, 225 acres; gas, 1400 acres as of July, 1934. **Production History:** Cumulative oil production to end of 1933, 145,000 barrels; cumulative gas production to end of 1933, 14,000 million cu. ft. **Principal Lease Holders:** New Brunswick Gas and Oilfields, Ltd.

Northwest Territories

Fort Norman Field (Oil)

Location: Located in the Northwest Territories approximately Lat. 65° and Long. 127° on the banks of the Mackenzie River about 400 miles south of its mouth, and 50 miles northwest of Norman, which is at the junction of the Great Bear and Mackenzie rivers. Nearest producing field is Turner Valley, over 1000 miles to the southeast. **Discovery Data:** Numerous seepages were known to the early explorers and the discovery of advantageous structures led to the recommendation of certain areas as probable commercial oil fields. The first well was drilled by the Imperial Oil Company in 1920 and reached a depth of 783 ft. A strong flow of 36° Baume oil was encountered in Upper Devonian shales. This well is located at the mouth of Bosworth creek and on the east side of the Mackenzie. Initial production of the well has been estimated at 100 barrels. **Geology:** Discovery well is located on the flank of a large anticline, 8 miles from its crest. This location was chosen not as a spot where great production was hoped for, but as a site where a hole of moderate depth could not fail to penetrate the petroliferous formations. **Producing Formations:** Fort Creek shales of Upper Devonian age. **Extent of Development:** 6 wells drilled—2 producers, 4 abandoned, as of June 30, 1934. **Deepest Hole:** Imperial Oil Company's Camp No. 2, 3057 ft. Abandoned in Middle Devonian limestone (Beavertail limestone, locally). **Productive Area:** Undetermined as of July, 1934. **Production History:** The field has produced commercially since 1932 with the following production: 1932, 1978 bbls.; 1933, 4608 bbls. Figures on 1934 production are not available, but two wells were producing June 30, 1934. **Present Activity:** None. **Principal Lease Holders:** Imperial Oil, Ltd.

Province of Ontario

Acton (Prospect)

Location: Lot 31, Concession 7, Nasageweya Twp., Halton County, Province of Ontaria; 3 miles from Acton; 15 miles from Guelph. **Discovery Data:** Geophysics. **Geology:** Anticline with faulting as minor feature: **Producing Formations:** None. **Extent of Development:** One test drilled as of June 30, 1934. **Deepest Hole:** Seynuck Valley Oil Co.'s No. 1, 4500 ft. **Productive Area:** None, as of June 30, 1934. **Production History:** Nothing up to June 30, 1934. **Present Activity:** One cable rig running as of June 30, 1934: **Principal Lease Holder**: Seynuck Valley Oil Co.

Bothwell (Oil)

Location: Principally in Zone Township, Kent County, Ontario. **Discovery Data:** Discovered in 1862 and many wells were drilled during the following three years in Mosa township north of the Thames River. These wells were abandoned in 1866 at the time of the Fenian raid and were flooded, consequently this part of the field was ruined. In 1895 the new section of the field lying in Zone township was discovered. **Geology:** Anticline. **Producing Formations:** Onondaga limestone, Devonian age, 395 to 410 ft. **Extent of Development:** No record of total wells drilled—500 or more as of June 30, 1934. **Deepest Hole:** 3998 ft., zone tested Pre-Cambrian. **Productive Area:** 400 acres proved for oil as of June 30, 1934. **Production History:** 2,337,000 barrels produced to the end of 1933. Production during the 6 months ending June 30, 1934, 16,240 barrels. Average daily production 60 barrels. Number of wells operating, 191 active, 77 inactive. Gravity of oil 36° Be. **Present Activity:** Oil field completely developed, a few small wells on southern flank were drilled in 1933. **Principal Lease Holders:** Carman & Fairbanks, J. McGill, G. E. Willets, Crotty Oil Company, C. and A. McRitchie, Summit Oil Company, Ltd., R. McGaffey, and other small leaseholders.

Brant (Gas)

Location: Province of Ontario; Onondago and Tuscarora Townships. **Discovery Data:** Well drilled in 1903 in city of Brantford. **Geology:** Monocline due to change in character of stratum. **Producing Formations:** Gas comes from Medina Cataract limestone and sandstone, Lower Silurian age. Tops of zone range from 360 to 415 ft.; bottoms, from 485 to 532 ft. **Extent of Development:** 152 wells to June 30, 1934. **Deepest Hole:** 2712 ft.—Pre-Cambrian. **Productive Area:** 3000 acres as of June 30, 1934. **Production History:** To end of 1933, 1,214 million cu. ft. **Present Activity;** 2 cable tool Canadian rigs running June 30, 1934. **Principal Lease Holders:** Petrol Oil & Gas Company, Ltd.; Dominion Natural Gas Company, Ltd.; River Gas Company, Ltd.

Dawn (Oil)

Location: Midway between Landbank and Florence in Dawn Township, Lambton County, Ontario. **Discovery Data:** Opened in 1897. Well drilled on Lot 17, Concession XIII, Dawn Township, to a depth of 342 ft. In 1921, a new gas field was discovered in Dawn Township. The discovery well was drilled in on Lot 24, Concession VII. Opening production 177,000 cu. ft. In 1932 oil was discovered in two wells. **Geology:** Dome in shallow horizon (Onondaga); fault in deeper horizon (Guelph). **Producing Formations:** Onondaga limestone, Devonian age, 320 to 370 ft.; Guelph-Salina formation, Silurian age, 1600 to 1800 ft. **Extent of Development:** Small shallow field fully developed many years ago. Guelph horizon had only three oil wells as of June 30, 1934. **Deepest Hole:** 3968 ft. zone tested Pre-Cambrian. **Productive Area:** 100 acres for oil as of June, 1934. **Production History:** 50,000 barrels to the end of 1933. Production during 6 months ending June 30, 1934, 72 barrels. Average daily production variable, shut down most of 1934. Number of wells operating, 3. Gravity of oil, 40° Be. **Present Activity:** Shallow field exhausted. Deep field is operated as a gas field which is held in reserve most of the year. **Principal Lease Holder:** Union Gas Company.

Declute (Gas)

Location: Province of Ontario; Kent County, Raleigh Township. **Discovery Data:** Discovery well was Union Gas Co. of Canada, Ltd.'s D'Clute 1 (being on the D'Clute farm), completed August, 1929, at 1578 ft. **Geology:** Anticlines with minor faulting. **Producing Formations:** Gas production comes from Salina (Carniferous) and Guelph limestones of Middle Silurian age. Average depth of top of Guelph is about 1490 ft. **Extent of Development:** 13 gas wells as of June 30, 1934. **Deepest Hole:** Union Gas Co. of Canada, Ltd.'s Sullivan 8, total depth 2065 ft., drilled through White Medina 10 ft. into what is known locally as the "big shales" (Queenstown red shale?). **Productive Area:** 600 acres of June 30, 1934. **Production History:** 1,063 million cu. ft. to end of 1933. **Present Activity:** Small amount of drilling being done with Canadian rig cable tools. **Principal Lease Holders:** Union Gas Company and others.

Dover (Oil and Gas)

Location: In Dover West township and Dover township, Kent County, Ontario. **Discovery Data:** Discovery well drilled in 1917 on Lot 3, Concession III, Dover West township, by the Union Gas Company. **Geology:** Syncline with fault. **Producing Formations:** Gas from Trenton limestone (Ordovician age) 2950 to 3300 ft.; oil from same at 3100 to 3300 ft. **Extent of Development:** 8 gas wells to

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- For driving rotary compressors
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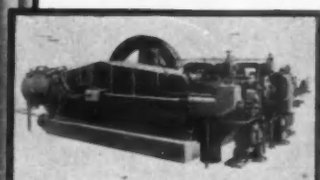
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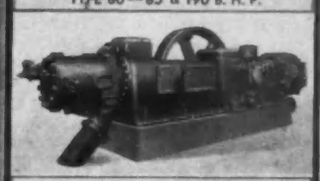
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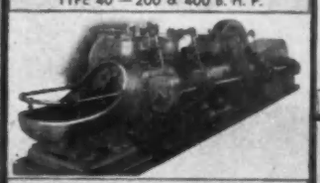
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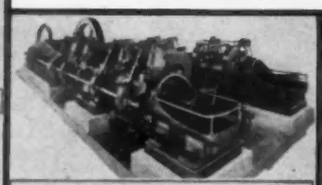
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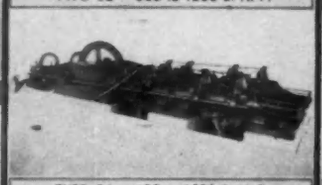
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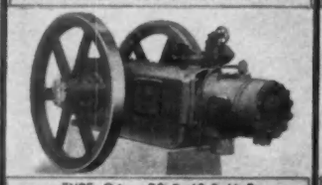
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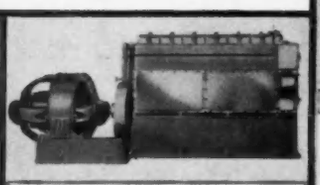
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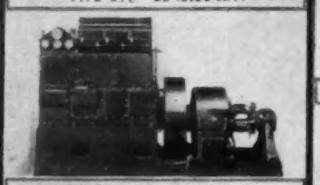
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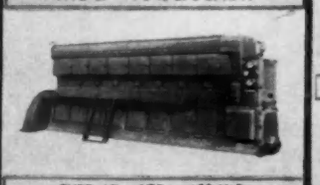
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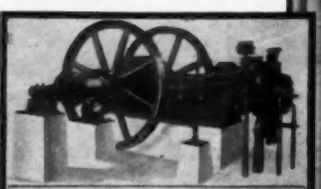
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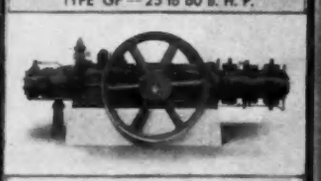
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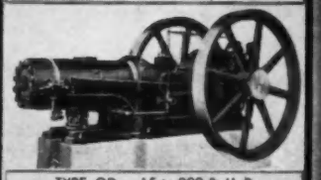
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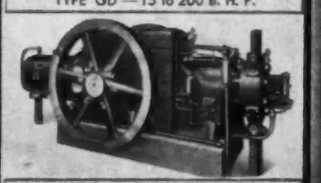
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CANADA—Province of New Brunswick—*Continued*

wells have penetrated pre-Carboniferous igneous rocks (Pre-Cambrian). **Productive Area:** Oil, 225 acres; gas, 1400 acres as of July, 1934. **Production History:** Cumulative oil production to end of 1933, 145,000 barrels; cumulative gas production to end of 1933, 14,000 million cu. ft. **Principal Lease Holders:** New Brunswick Gas and Oilfields, Ltd.

Northwest Territories

Fort Norman Field (Oil)

Location: Located in the Northwest Territories approximately Lat. 65° and Long. 127° on the banks of the Mackenzie River about 400 miles south of its mouth, and 50 miles northwest of Norman, which is at the junction of the Great Bear and Mackenzie rivers. Nearest producing field is Turner Valley, over 1000 miles to the southeast. **Discovery Data:** Numerous seepages were known to the early explorers and the discovery of advantageous structures led to the recommendation of certain areas as probable commercial oil fields. The first well was drilled by the Imperial Oil Company in 1920 and reached a depth of 783 ft. A strong flow of 36° Baume oil was encountered in Upper Devonian shales. This well is located at the mouth of Bosworth creek and on the east side of the Mackenzie. Initial production of the well has been estimated at 100 barrels. **Geology:** Discovery well is located on the flank of a large anticline, 8 miles from its crest. This location was chosen not as a spot where great production was hoped for, but as a site where a hole of moderate depth could not fail to penetrate the petroliferous formations. **Producing Formations:** Fort Creek shales of Upper Devonian age. **Extent of Development:** 6 wells drilled—2 producers, 4 abandoned, as of June 30, 1934. **Deepest Hole:** Imperial Oil Company's Camp No. 2, 3057 ft. Abandoned in Middle Devonian limestone (Beavertail limestone, locally). **Productive Area:** Undetermined as of July, 1934. **Production History:** The field has produced commercially since 1932 with the following production: 1932, 1978 bbls.; 1933, 4608 bbls. Figures on 1934 production are not available, but two wells were producing June 30, 1934. **Present Activity:** None. **Principal Lease Holders:** Imperial Oil, Ltd.

Province of Ontario

Acton (Prospect)

Location: Lot 31, Concession 7, Nasageweya Twp., Halton County, Province of Ontaria; 3 miles from Acton; 15 miles from Guelph. **Discovery Data:** Geophysics. **Geology:** Anticline with faulting as minor feature: **Producing Formations:** None. **Extent of Development:** One test drilled as of June 30, 1934. **Deepest Hole:** Seynuck Valley Oil Co.'s No. 1, 4500 ft. **Productive Area:** None, as of June 30, 1934. **Production History:** Nothing up to June 30, 1934. **Present Activity:** One cable rig running as of June 30, 1934: **Principal Lease Holder**: Seynuck Valley Oil Co.

Bothwell (Oil)

Location: Principally in Zone Township, Kent County, Ontario. **Discovery Data:** Discovered in 1862 and many wells were drilled during the following three years in Mosa township north of the Thames River. These wells were abandoned in 1866 at the time of the Fenian raid and were flooded, consequently this part of the field was ruined. In 1895 the new section of the field lying in Zone township was discovered. **Geology:** Anticline. **Producing Formations:** Onondaga limestone, Devonian age, 395 to 410 ft. **Extent of Development:** No record of total wells drilled—500 or more as of June 30, 1934. **Deepest Hole:** 3998 ft., zone tested Pre-Cambrian. **Productive Area:** 400 acres proved for oil as of June 30, 1934. **Production History:** 2,337,000 barrels produced to the end of 1933. Production during the 6 months ending June 30, 1934, 16,240 barrels. Average daily production 60 barrels. Number of wells operating, 191 active, 77 inactive. Gravity of oil 36° Be. **Present Activity:** Oil field completely developed, a few small wells on southern flank were drilled in 1933. **Principal Lease Holders:** Carman & Fairbanks, J. McGill, G. E. Willets, Crotty Oil Company, C. and A. McRitchie, Summit Oil Company, Ltd., R. McGaffey, and other small leaseholders.

Brant (Gas)

Location: Province of Ontario; Onondago and Tuscarora Townships. **Discovery Data:** Well drilled in 1903 in city of Brantford. **Geology:** Monocline due to change in character of stratum. **Producing Formations:** Gas comes from Medina Cataract limestone and sandstone, Lower Silurian age. Tops of zone range from 360 to 415 ft.; bottoms, from 485 to 532 ft. **Extent of Development:** 152 wells to June 30, 1934. **Deepest Hole:** 2712 ft.—Pre-Cambrian. **Productive Area:** 3000 acres as of June 30, 1934. **Production History:** To end of 1933, 1,214 million cu. ft. **Present Activity;** 2 cable tool Canadian rigs running June 30, 1934. **Principal Lease Holders:** Petrol Oil & Gas Company, Ltd.; Dominion Natural Gas Company, Ltd.; River Gas Company, Ltd.

Dawn (Oil)

Location: Midway between Landbank and Florence in Dawn Township, Lambton County, Ontario. **Discovery Data:** Opened in 1897. Well drilled on Lot 17, Concession XIII, Dawn Township, to a depth of 342 ft. In 1921, a new gas field was discovered in Dawn Township. The discovery well was drilled in on Lot 24, Concession VII. Opening production 177,000 cu. ft. In 1932 oil was discovered in two wells. **Geology:** Dome in shallow horizon (Onondaga); fault in deeper horizon (Guelph). **Producing Formations:** Onondaga limestone, Devonian age, 320 to 370 ft.; Guelph-Salina formation, Silurian age, 1600 to 1800 ft. **Extent of Development:** Small shallow field fully developed many years ago. Guelph horizon had only three oil wells as of June 30, 1934. **Deepest Hole:** 3968 ft. zone tested Pre-Cambrian. **Productive Area:** 100 acres for oil as of June, 1934. **Production History:** 50,000 barrels to the end of 1933. Production during 6 months ending June 30, 1934, 72 barrels. Average daily production variable, shut down most of 1934. Number of wells operating, 3. Gravity of oil, 40° Be. **Present Activity:** Shallow field exhausted. Deep field is operated as a gas field which is held in reserve most of the year. **Principal Lease Holder:** Union Gas Company.

Declute (Gas)

Location: Province of Ontario; Kent County, Raleigh Township. **Discovery Data:** Discovery well was Union Gas Co. of Canada, Ltd.'s D'Clute 1 (being on the D'Clute farm), completed August, 1929, at 1578 ft. **Geology:** Anticlines with minor faulting. **Producing Formations:** Gas production comes from Salina (Carniferous) and Guelph limestones of Middle Silurian age. Average depth of top of Guelph is about 1490 ft. **Extent of Development:** 13 gas wells as of June 30, 1934. **Deepest Hole:** Union Gas Co. of Canada, Ltd.'s Sullivan 8, total depth 2065 ft., drilled through White Medina 10 ft. into what is known locally as the "big shales" (Queenstown red shale?). **Productive Area:** 600 acres of June 30, 1934. **Production History:** 1,063 million cu. ft. to end of 1933. **Present Activity:** Small amount of drilling being done with Canadian rig cable tools. **Principal Lease Holders:** Union Gas Company and others.

Dover (Oil and Gas)

Location: In Dover West township and Dover township, Kent County, Ontario. **Discovery Data:** Discovery well drilled in 1917 on Lot 3, Concession III, Dover West township, by the Union Gas Company. **Geology:** Syncline with fault. **Producing Formations:** Gas from Trenton limestone (Ordovician age) 2950 to 3300 ft.; oil from same at 3100 to 3300 ft. **Extent of Development:** 8 gas wells to

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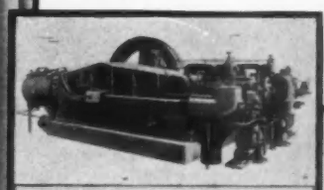
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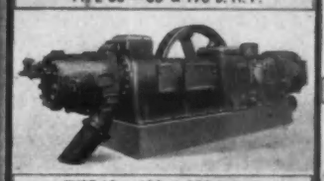
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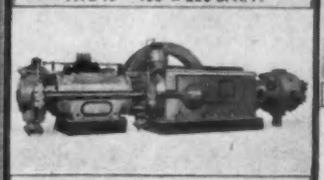
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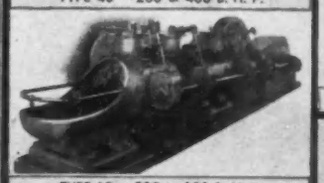
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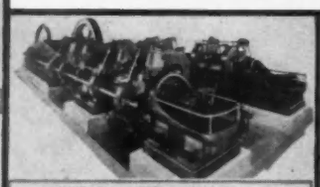
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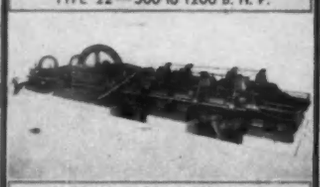
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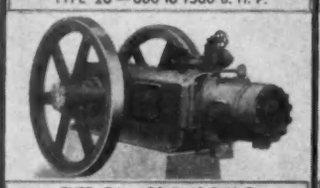
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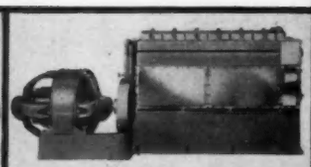
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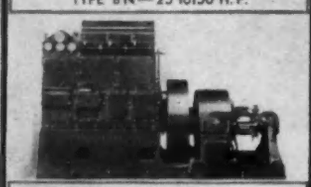
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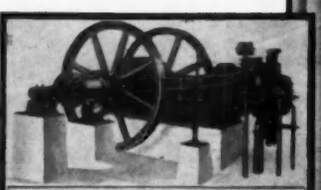
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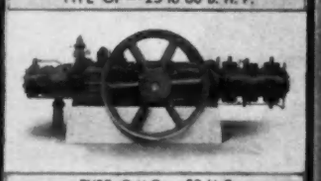
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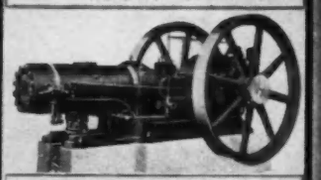
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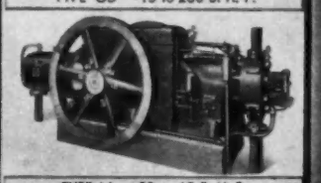
TYPE 16—50 to 60 B. H. P.

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CANADA—Province of Ontario—*Continued*

June 30, 1934. **Deepest Hole:** 4003 ft. zone tested Pre-Cambrian. **Productive Area:** 300 acres for oil; 600 acres for gas as of June 30, 1934. **Production History:** 82,750 barrels to the end of 1933. Production 6 months ending June 30, 1934, was 385 barrels. Gravity of oil 36° Be. Gas production to end of 1933 was 5,615 million cu. ft. Two wells on production as of June 30, 1934. **Present Activity:** One string of tools operating. Western extension of field being developed but wells are mainly gas wells which produced a few barrels of oil in their early days. **Principal Lease Holder:** Union Gas Co.

Dunwich (Oil)

Location: Dunwich township, X, 10; V, 24; Elgin County, Ontario. **Geology:** Dome. **Producing Formations:** Onondaga limestone, Devonian age, 330 to 400 ft. **Extent of Development:** About 200 wells as of June 30, 1934. **Deepest Hole:** 3585 ft. Zone tested, Pre-Cambrian. **Productive Area:** 500 acres as of June 30, 1934. **Production History:** 178,300 barrels to end of 1933. **Present Activity:** About 100 wells are bailed twice yearly. **Principal Lease Holders:** George Lidster, Peace River Development Company.

Elgin (Gas)

Location: Province of Ontario; Elgin County, Bayham Township. **Discovery Data:** Discovered about 1910. **Geology:** Monocline with accumulation due to change in character of stratum. **Producing Formations:** Gas comes from Clinton limestone of Lower Silurian age; productive zone topped at from 1250 to 1380 ft.; bottomed at from 1270 to 1400 ft. **Extent of Development:** 75 wells to June 30, 1934, field fully developed. **Deepest Hole:** 2585 ft.; Pre-Cambrian. **Productive Area:** 9400 acres for gas as of June 30, 1934. **Production History:** End of 1933, 3,883 million cu. ft. **Present Activity:** None; old field. **Principal Lease Holders:** Central Pipe Line Co., Ltd.; Dominion Natural Gas Company, Ltd.

Enniskillen (Oil)

Location: See Petrolia, Ontario.

Essex (Gas)

Location: Southwestern part of Province of Ontario; Essex County. **Discovery Data:** Discovered through actions based on the fact that the Cincinnati arch contains gas in Ohio and on the belief that the structures extended into Ontario. In 1888 the Ontario Natural Gas Co. drilled a well on the northwest corner, Lot 7, Concession I, Gosfield township, and obtained gas. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Gas comes from the Salina and Guelph limestones of the Silurian age. **Extent of Development:** 30 gas wells as of June 30, 1934. **Deepest Hole:** To Granite. **Productive Area:** 2000 acres for gas as of June 30, 1934. **Production History:** 22,000 million cu. ft. to end of 1933. **Present Activity:** Old field abandoned. A few scattered wells on outskirts of field. One standard cable tool rig running June 30, 1934. **Principal Lease Holders:** Southern Ontario Gas Company, Ltd., on outskirts of field, and Bon Jasperson to west of old field.

Haldimand (Gas)

Location: Province of Ontario; Townships of Canborough, Dunn, Moulton, North Cayuga, Oneida, Rainham, Seneca, Sherbrooke, South Cayuga, Walpole. **Discovery Data:** First well drilled in village of Caledonia about 1889. Dominion Natural Gas drilled their first wells in this field in 1905. **Geology:** Varying porosity in limestone. Sandstone lenses. **Producing Formations:** Gas comes from Medina Cataract limestone and sandstone of Lower Silurian age; tops of zone 350 to 870 ft.; bottoms, 400 to 900 ft. **Extent of Development:** 2631 gas wells as of June 30, 1934. **Deepest Hole:** To Pre-Cambrian. **Productive Area:** 145,000 acres as of June 30, 1934. **Production History:** 58,520 million cu. ft., including Wentworth and Lincoln fields. **Present Activity:** About 30 cable tool Canadian rigs working, includes Wentworth and Lincoln fields. **Principal Lease Holders:** Niagara Natural Gas Co., Port Colborne-Welland Natural Gas & Oil Company, W. C. Patterson, R. H. Smith, Union Gas Company of Canada Ltd., White Oil & Gas Company, Ltd., Walpole Gas Syndicate, Dominion Natural Gas Company, Ltd.

Kent (Tilbury Field) (Gas)

Location: Province of Ontario; Kent County field lies mainly in Tilbury East township, south of the Tilbury oil field, but extends into the townships of Romney and Raleigh. **Discovery Data:** Discovered in 1906 while drilling for oil. **Geology:** Dome with faulting as minor feature. **Producing Formations:** Gas production comes from Salina and Guelph limestones, Middle Silurian age, generally found at from 1200 to 1400 ft. **Extent of Development:** 505 gas wells as of June 30, 1934. **Deepest Hole:** 3998 ft.; zone tested Pre-Cambrian. **Productive Area:** 15,000 acres for gas; gas field fully explored. **Production History:** 167,210 million cu. ft. to end of 1933. **Present Activity:** None. **Principal Lease Holders:** Southern Ontario Gas Co. Ltd. and Union Gas Corporation of Canada Ltd.

Lambton (Gas)

Location: Province of Ontario; Oil Springs oil field, Ontario; see Dawn gas field; Lambton County; Moore township. **Discovery Data:** In 1913 several wells struck gas in the Guelph formation. Larger wells drilled in 1914 struck gas from 15 to 135 ft. below the top of the Guelph. Dawn field, 1922. **Geology:** Fault with probable production in old Guelph islands. **Producing Formations:** Productive zone: average top, 1400 ft.; bottom, 1600 ft.; Salina and Guelph limestones of Middle Silurian age. **Extent of Development:** 25 producers as of June 30, 1934. **Deepest Hole:** 4420 ft.; zone tested—Trenton, dry. **Productive Area:** 1000 acres for gas, as of June 30, 1934. **Production History:** End of 1933, 1,375 million cu. ft. **Present Activity:** 3 standard cable tool rigs drilling as of June 30, 1934. **Principal Lease Holders:** Sarnia Gas & Oil Co., Union Gas Co. of Canada.

Lincoln (Gas)

Location: Province of Ontario; wells located in Caistor and Gainsborough Twps. **Discovery Data:** In 1888 a well was drilled in Louth township; gas showings were found in the Medina and Trenton but not sufficient to warrant utilization. **Geology:** Monocline due to change in character of stratum. **Producing Formations:** Gas comes from Medina Cataract limestone and sandstone of Lower Silurian age. Tops of productive zone range from 315 to 395 ft.; bottoms, from 433 to 500 ft. **Extent of Development:** 101 wells as of June 30, 1934. **Productive Area:** 5400 acres as of June 30, 1934. **Production History:** 58,520 million cu. ft., including Haldimand and Wentworth fields, to end of 1933. **Present Activity:** Included in Haldimand field. **Principal Lease Holders:** Grimsby Natural Gas Company Ltd., Lincoln Gas Company Ltd., Dominion Natural Gas Company Ltd.

Middlesex (Gas)

Location: Province of Ontario; Mosa Twp., Middlesex County. See also Mosa oil field. **Discovery Data:** Discovered about 1930. **Geology:** Monocline with accumulation due to change in character of stratum. **Producing Formations:** Grimsby limestone, sandy, Lower Silurian age, top of productive zone found at average depth of 1450 ft., bottom at 1500 ft. **Extent of Development:** 3 wells as of June 30, 1934. **Deepest Hole:** 3755 ft.; zone tested—Pre-Cambrian. **Productive Area:** 200 acres for gas as of June 30, 1934. **Production History:** Shut in (end of 1933). **Present Activity:** None. **Principal Lease Holders:** Ontario Salt Co. Ltd., Union Gas Company of Canada Ltd.

Moore (Oil)

Location: Moore Twp., Lambton County, west of Petrolia, Province of Ontario. **Discovery Data:** Discovered in 1904 on Lot 3, Concession X. **Producing Formations:** Limestone, Devonian age, 470 to 495 ft. **Extent of Development:** No record. **Deepest Hole:** 4420 ft. zone tested—Trenton. **Productive Area:** 4000 acres as of June 30, 1934. **Production History:** Output included with cumu-

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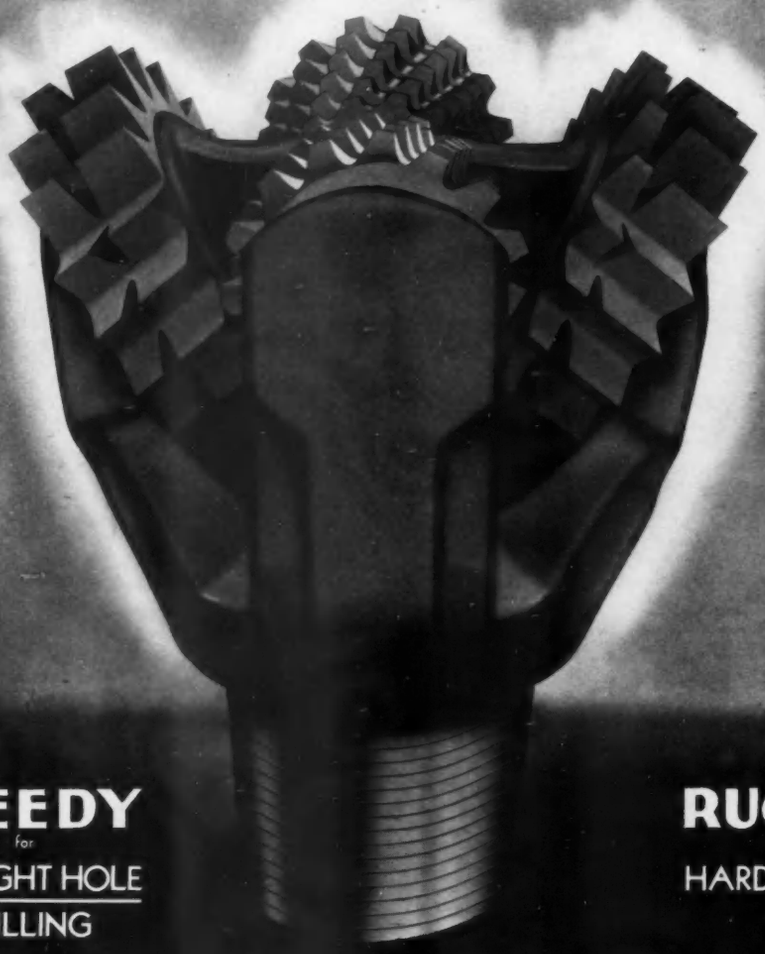

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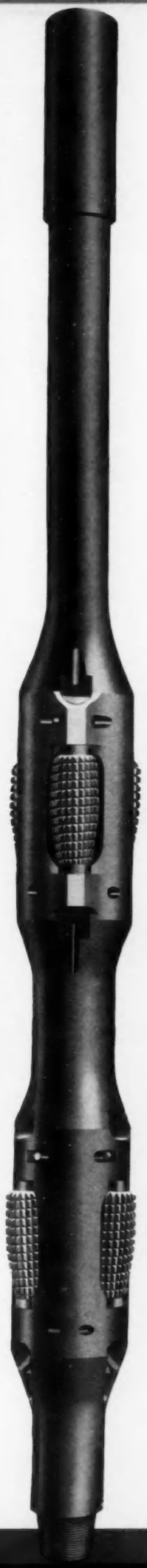

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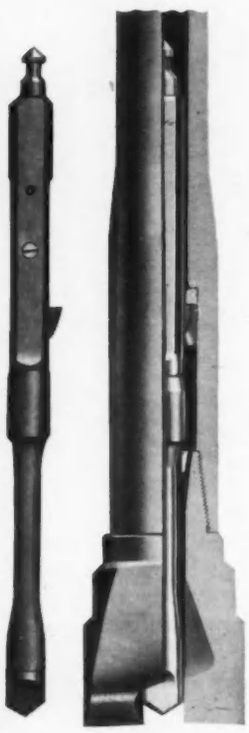
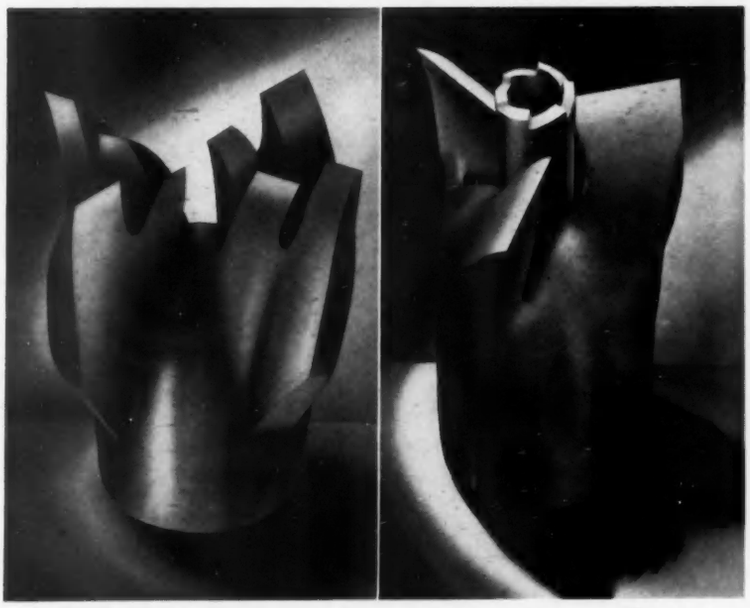


A CENTER BIT ASSEMBLY IS USED WHEN NECESSARY.



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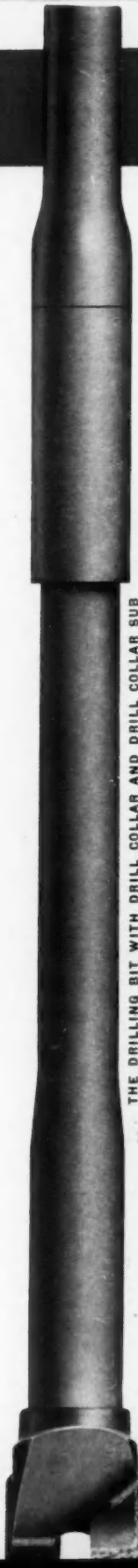

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CANADA—Province of Ontario—*Continued*

lative total for Petrolia and Enniskillen field. Production six months ending June, 1934, 1542 barrels. Number of producers, 53 active, 34 inactive. Gravity of oil 36° Be. **Present Activity:** Old field completely developed, very little exploratory work. **Principal Lease Holders:** John Bailey, D. R. Duncan, R. H. Owen, Ed L. Rainsberry, J. H. Bowles, Walter McLellan, George Chesher, Henry C. Elliott, W. W. Miller, John Heal, C. A. Pratt, Charles Learn, and various other small holders.

Mosa (Oil)

Location: In Mosa Twp., Middlesex County, about 4 miles northwest of Glencoe, Ontario. **Discovery Data:** Discovery well in 1917. **Geology:** Dome. **Producing Formations:** Widder, Onondaga, and Delaware limestones, Devonian age, 275 to 425 ft. **Extent of Development:** There is no record of the wells. Field was overdrilled. **Deepest Hole:** 3755 ft, zone tested Pre-Cambrian. **Productive Area:** 4000 acres as of June 30, 1934. **Production History:** 312,000 barrels to the end of 1933. Production during 6 months ending June 30, 1934, 4025 barrels. **Present Activity:** Field completely drilled. In 1933 a well was brought in on the west flank where there may be a local feature. **Principal Lease Holders:** Dominion Petroleum Company, Lachlam McLean, Castle Oil & Gas Company, Ltd., Dan McNoughton.

Norfolk (Gas)

Location: Province of Ontario; Charlotteville, Houghton, Middleton, Walsingham (north and south), Townsend, Windham and Woodhouse Twps., Norfolk County. **Discovery Data:** Discovered in 1923, the Dominion Natural Gas Co., opened up a new gas field in Middleton Twp., and since 1930 the Acme Company extended the field over two miles. **Geology:** Lens in Clinton. **Producing Formations:** Gas from Clinton and Whirlpool formations of Lower Silurian age. Top of productive zone found at from 870 to 1000 ft.; bottoms of producing wells are at from 1000 to 1200 ft. **Extent of Development:** 302 gas wells as of June 30, 1934. **Deepest Hole:** 1700 to Queenston Red shale. **Productive Area:** 18,900 acres as of June 30, 1934. **Production History:** 7555 million cu ft to end of 1933. **Present Activity:** 5 strings cable tools, Canadian rigs running as of June 30, 1934. **Principal Lease Holders:** Midwal Oil & Gas Co., Ltd.; Tillsonburg Oil & Gas Co., Ltd.; Acme Gas & Oil, Ltd.; Dom. Natural Gas Co., Ltd.

Oil Springs (Oil)

Location: Lambton County, Province of Ontario. **Discovery Data:** Seepages of tarry or asphaltum-like material resulted in drilling at Oil Springs, Enniskillen Twp., in 1858—first wells reached gravel above the bedrock. In 1861, a well was drilled into the rock and at 160 feet an oil gusher was struck. **Geology:** Dome. **Producing Formations:** Onondaga limestone, Devonian age, found generally at from 370 to 400 feet. **Extent of Development:** No record of number of oil wells drilled since discovery. **Deepest Hole:** Depth 3750 ft, Trenton. **Productive Area:** 750 acres as of June 30, 1934. **Production History:** 7,664,750 barrels to end of 1933; production 6 months ending June 30, 1934—14,625 barrels; daily average of field 90 barrels as of June 30, 1934; number of wells producing 906 active, 112 shut down; gravity of oil 38° Be. **Present Activity:** Old field completely drilled. **Principal Lease Holders:** Dan Jewell, Sproule & Johnston, Ed J. Mott, Wm. Byers, L. H. Morningstar, Canada Oil Producers, Ltd., James T. Hillis & Sons, Estate of John Warren, Anderson Brothers & Thompson, Estate of J. H. Fairbank, A. C. Wallen.

Onondaga (Oil)

Location: Onondaga Twp., Brandt County, Ontario. **Discovery Data:** Discovery oil well on lot 16, Concession III, west of Fairchild's Creek, drilled in 1910. Gravity about 39° Be. **Geology:** Porous lens in gentle dip. **Producing Formations:** Whirlpool sandstone (White Medina), Silurian age, 480 to 650 ft. **Extent of Development:** Many wells were drilled over a wide area. The field was never important. **Deepest Hole:** 2712 feet zone tested Pre-Cambrian. **Productive Area:** 1920 acres as of June 30, 1934. **Production History:** 40,000 barrels to the end of 1933. Production 6 months ending June 30, 1934 was 384 barrels. Number of wells producing then, 10. **Present Activity:** Practically nil. **Principal Lease Holders:** Canadian Dutch Oil, Ltd., George Fearman, Onondaga Oil & Gas Co., Ltd., and various small holders.

Petrolia and Enniskillen (Oil)

Location: This field includes parts of Enniskillen, Moore, Sarnia and Plympton townships, Lambton County, Province of Ontario. **Discovery Data:** First flowing well in 1865—depth, approximately 462 feet. **Geology:** Anticline. **Producing Formations:** 460 to 500 ft.; average completions 470 to 510 feet in limestone (Onondaga) Devonian age. **Extent of Development:** No record of the number of wells drilled since the discovery of the field, but there were 1489 active and inactive producers as of June 30, 1934. **Deepest Hole:** 3947 feet zone tested—Trenton. **Productive Area:** Approximately 8000 acres as of June 30, 1934. **Production History:** Production to end of 1933 totaled 15,580,000 barrels including output from Moore, Sarnia, and Plympton Twps.; production 6 months ending June 30, 1934: 27,215 barrels; daily average production of the field as of June 30, 1934, 170 barrels; number of wells producing, 792 active, 697 inactive; gravity of oil 36° Be. **Present Activity:** Old field completely developed. No new activity. **Principal Lease Holders:** J. E. Armstrong, Robert Kettle, Estate of John Kerr, Mrs. Ross Kerr, Fred Howlett, Thomas A. Brock, Harry Levine, Charles H. Barrett, Canada Crude Oil Producers, Ltd., Mutual Oil Producing Company, Ltd., Watt I. Robert, Ontario Lands and Oil Company, Ltd., John G. Cole, F. H. Edward.

Plympton (Oil)

Location: Principally in Plympton Twp., but extends northwest into Sarnia Twp., Lambton County, Ontario. **Discovery Data:** Grew out of extension of the old Petrolia field. **Geology:** Anticline. **Producing Formations:** Onondaga limestone, Devonian age, 450 to 525 ft. **Extent of Development:** No record of total wells drilled. **Deepest Hole:** 710 ft zone tested Silurian. **Productive Area:** 2800 acres as of June 30, 1934. **Production History:** Output included with cumulative total for Petrolia & Enniskillen field. Production during 6 months ending June 30, 1934: 80 barrels. Average daily production 2/3 barrel. Number of wells producing: 22 active, 9 inactive as of June 30, 1934. Gravity of oil 36° Be. **Present Activity:** Old field completely developed. Spasmodic interest shallow oil and Guelph horizon at 1600 ft. **Principal Lease Holders:** John D. Paul, J. Ewart, J. A. McManus, W. J. Wilkins, Alex McManus, Wm. E. Young.

Sarnia (Oil)

Location: Sarnia Twp., Lambton County, Ontario, adjoining the Petrolia oil field on the east. **Discovery Data:** This field is really one unit with the Petrolia field and its development grew out of the extension of that field. **Geology:** Anticline. **Producing Formations:** Onondaga limestone, Devonian age, 470 to 485 ft. **Extent of Development:** No record of number of wells drilled. **Deepest Hole:** 1614 ft zone tested, Salina. **Productive Area:** 4000 acres as of June 30, 1934. **Production History:** Output included with cumulative total for Petrolia and Enniskellen field. Production during 6 months ending June 30, 1934, 1559 barrels. Average daily production 8 barrels. Number of wells producing 68 active, 36 inactive. Gravity of oil 36° Be. **Present Activity:** Old field fully developed; some testing for oil in Guelph at 1600 ft, to date unfavorable. **Principal Lease Holders:** Sarnia Gas Oil Company, E. H. Balls, Clarence H. Elliott, George Chesher, Herbert Logan, John Mills, Mrs. W. McCrie, Frank J. Miller, H. Halliday.

CANADA—Province of Ontario—*Continued*

Six Nations Indian Reserve (Gas)

Location: Six Nations Indian Reserve, Tuscarora Twp., Brant County, Ontario. **Producing Formations:** Clinton and White Medina limestones. **Extent of Development:** 66 wells drilled, 44 of which were producers as of June 30, 1934. **Deepest Hole:** 600 ft. **Productive Area:** Undetermined. **Present Activity:** Three wells contracted for as of June 30, 1934: **Principal Lease Holder:** Petrol Oil & Gas Co.

Thamesville (Oil)

Location: Kent County, Ontario, Zone Twp., I, 5; III, 5; IV, 5. **Discovery Data:** Discovered about 1875, later extensions up to 1915. **Geology:** Anticline, with four summits occupied by oil pools. **Producing Formation:** Onondaga limestone, Devonian age, 370 to 380 ft. **Extent of Development:** Completely drilled. Later developments have not proven important, 8 wells in 1930. **Deepest Hole:** 3981 ft zone, tested Pre-Cambrian. **Productive Area:** 300 acres as of June 30, 1934. **Production History:** 36,300 barrels to the end of 1933. Production during 6 months ending June 30, 1934, nil. **Present Activity:** Nil. Spasmodic interest. **Principal Lease Holder:** Colchester Oil & Gas Co., Ltd.

Tilbury (Oil and Gas)—(See Kent Gas Field)

Location: Fletcher and Glenwood fields Tilbury East Twp., Kent County, Ontario. **Discovery Data:** Oil was struck in the Fletcher field in 1905 on the northwest part of Lot 10, North range of Tilbury East Twp. **Geology:** Low anticline being a northern extension of the main Kent field. **Producing Formations:** Oil from base of Salina or top of Guelph, limestone or dolomite, Silurian age, about 1425 ft. **Extent of Development:** One hundred or more wells drilled. Now all abandoned. **Deepest Hole:** 3775 ft. Zone tested Pre-Cambrian. **Productive Area:** 3000 acres as of June 30, 1934. **Production History:** 1,112,214 barrels to the end of 1933. Output during 6 months ending June 30, 1934, nil. **Present Activity:** Nil.

Tuscarora (Gas)

Location: See Six Nations Indian Reserve, Ontario.

PRODUCTION OF PETROLEUM IN CANADA, BY MONTHS, 1929-1934

MONTH	1934(a) Barrels	1933 Barrels	1932 Barrels	1931 Barrels	1930 Barrels	1929 Barrels
January	124,425	82,792	96,912	179,711	98,205	54,726
February	116,546	73,101	90,841	155,651	87,911	52,882
March	130,046	87,241	97,484	160,358	116,630	69,503
April	118,890	84,989	95,585	153,705	100,002	83,317
May	117,693	90,686	95,222	156,392	103,915	100,508
June	109,022	114,380	89,525	148,602	118,636	107,539
July	120,772	100,445	86,969	119,327	120,062	108,740
August	114,778	101,533	85,229	103,314	132,955	111,093
September	114,242	98,273	79,813	101,435	136,757	100,525
October	122,056	107,054	78,845	99,924	167,446	113,723
November	113,228	108,323	77,107	99,835	157,063	114,029
December	117,113	113,724	80,841	106,201	182,638	100,783
TOTAL	1,418,811	1,162,541	1,054,373	1,584,455	1,522,220	1,117,368

(a) Subject to revision.

Welland (Gas)

Location: Province of Ontario; includes parts of Humberstone, Bertie, Crowland and Willoughby Twps. **Discovery Data:** First well drilled near Port Colborne in 1885. Depth 763 ft.—output 7000 cu. ft. a day. **Geology:** Monocline due to change in character of stratum. **Producing Formation:** Gas comes from Medina Cataract limestone and sand stone; tops of zone range from 400 to 775 ft.; bottoms, from 430 to 910 ft. Silurian age. **Extent of Development:** 506 wells to June 30, 1934. **Deepest Hole:** 3362 ft—Pre-Cambrian. **Productive Area:** 38,000 acres as of June 30, 1934. **Production History:** To end of 1933—39,723 million cu ft. **Present Activity:** 2 cable tool rigs, Canadian. **Principal Lease Holders:** Provincial Natural Gas and Fuel Co. of Ontario, Ltd., Industrial Natural Gas Co., Ltd.

Wentworth (Gas)

Location: Province of Ontario; Binbrook and Glanford Twps., Wentworth County. **Discovery Data:** Followed extension of Haldimand field. **Geology:** Monocline due to change in character of stratum. **Producing Formations:** Gas comes from Clinton limestone and Medina Cataract sandstone, Lower Silurian age. Tops, 300 to 390 ft; bottoms of zone, 428 to 440 ft. **Extent of Development:** 154 gas wells as of June 30, 1934. **Deepest Hole:** 2827 ft, Pre-Cambrian. **Productive Area:** 6000 acres as of June 30, 1934. **Production History:** To end of 1933, 58,520 million cu ft, including Haldimand and Lincoln fields. **Present Activity:** Included in Haldimand. **Principal Lease Holders:** Continental Gas Corporation; Dominion Natural Gas Company, Ltd.

Province of Saskatchewan

Lloydminster (Gas)

Location: Saskatchewan Province, 1 mile north of town of Lloydminster; 60 miles southwest Wainwright oil and gas field; 90 miles from Battleford; 160 miles from Sasatoon; 360 miles from Regina. **Discovery Data:** Gas in shallow wells 20 miles southwest led to drilling Lloydminster Gas Co.'s No. 1, in 1934; completed at 2000 ft. for an initial production of 16,750,000 cu. ft. per day, 565 lbs. per square inch pressure. **Geology:** Low Broad Anticline. **Producing Formations:** Gas sand, Lower Cretaceous, at 2000 ft, showings in discovery well: four showings of heavy crude and one showing light grade oil (asphalt?). Field untested for oil. **Extent of Development:** One gas well in field as of June 30, 1934. **Deepest Hole:** Lloydminster Gas Co.'s No. 1, 2000 ft, completed March 30, 1934, 11-50-28 W3rd, in Lower Cretaceous, initial production 16,750,000 cu. ft. **Productive Area:** Undetermined. **Production History:** None. **Present Activity:** One standard cable rig running. **Principal Lease Holders:** Lloydminster Gas Co., Ltd., holds 30,000 acres; has 20-year franchise for Lloydminster.

In presenting the foregoing information on oil and gas fields of Canada, The OIL WEEKLY takes pleasure in acknowledging the co-operation and aid of the various government bureaus of Canada and many operators. This publication extends thanks especially to the following gentlemen and organizations:

Amalgamated Oil Company; E. W. Bowness of the Canadian Natural Gas, Light, Heat and Power Company, Ltd.; W. Calder, director of Department of Lands and Mines of Alberta; L. A. Coste of the Union Gas Company of Canada, Ltd.; Julian Garrett of Northwestern Utilities, Ltd.; The Geological Survey of Canada; W. H. Gray of Eagle Butte Oil Company; Colonel R. B. Harkness of the Ontario Gas Commission; Imperial Oil, Ltd.; Lloydminster Gas Company; W. H. Losee, chief of M. M. & C. branch, Dominion Bureau of Statistics; John Ness of Toronto; J. B. Noble of Vancouver; Nordon Corporation, Ltd.; Petrol Oil & Gas Company, Ltd.; Seynuch Valley Oil Company, and Vanalta, Ltd.

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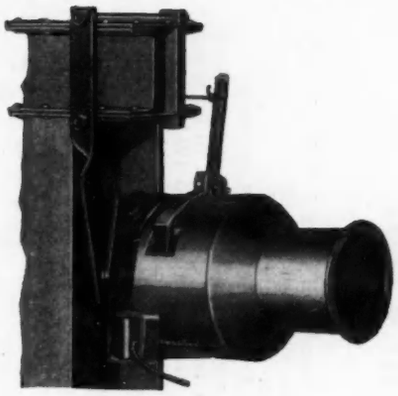

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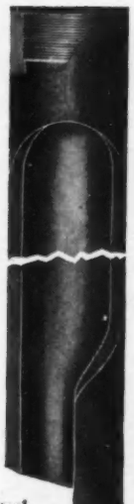

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Oil and Gas Fields of Cuba

General Information

Ralph Arnold of Los Angeles, California, stated to assembled members of the A.I.M.M.E. in session in 1924 that south of Havana there is a geanticline extending from Madruga, Cuba, to Bejucal. The older formations outcrop in the east and gradually go under until in the Bejucal region the entire geological column lies below the surface, with the Nazareno formation on top.

"Asphalt occurs in the upper shales in the form of dikes that break through the older formations. Between Madruga and Bejucal the San Francisco formation has come to the surface in a dome and still farther east there are other domes near the base of the formation in which the Madruga chalk is the surface rock.

"Fossils obtained in the first 1100 feet of drilling have been definitely determined as Oligocene; 400 feet below the Oligocene has been definitely determined as Cretaceous. The 400-foot layer therefore may be Eocene," Mr. Arnold stated.

Source of oil was fixed at that time in Cuba as being Jurassic limestone. Oil has been seen running out of the cavities of freshly broken limestone—cavities in fossils in the limestone.

Surface rocks of the Madruga anticline are Cretaceous shales, according to Albert Wright, Jr., and P. W. K. Sweet, who classify these shales as the Havana formation. The Havana formation is estimated to be between 2000 and 3500 feet thick.

Motembo Basin (Naphtha)

Location: Municipalities of San Jose de los Ramos, near Corralillo, about 12 kilometers north of the railroad station at San Jose de los Ramos and about an equal distance from the north coast, near the dividing line of the Provinces of Santa Clara and Matanzas. Field also known as San Juan de Motembo, also Hacienda Motembo. **Discovery Data:** Hydrocarbonic and butanic gas seepages discovered in 1881, first wells drilled in August, 1881, 285 feet, producing 25 gallons of naphtha daily. Initial daily production of other wells drilled later, 250 gallons, diminishing gradually thereafter. Field later exploited by Cuban American Oil Company in 1915 and Compania Industrial de Gasolina y Nafta de San Juan de Motembo in 1918. Gas seepage estimated 150,368 cubic feet per 24 hours, humid; butanic and hydrocarbon condensations. Specific gravity of gas, 63.4; boiling point 118°; 2 percent evaporation. **Geology:** Broken earth surface, volcanic rock formation, igneous glass and other volcanic materials. Monocline with accumulation against igneous barriers. Irregular dome formations with faultings. **Producing Formations:** Data not available in 1934. **Extent of Development:** Number of wells drilled unknown. Large number of failures. Production of wells diminish greatly after being drilled and new wells have to be drilled often. Maximum production, 3000 gallons daily; minimum, 500 gallons daily, in 1933. **Deepest Hole:** Compania Minera San Elias, S. A., well drilled in 1933, depth about 2000 feet. **Productive Area:** About 108 hectares. Other claims on property nearby are reported to be inactive at present. **Production History:** No data on production prior to 1933 and for first 6 months of 1934. Production of naphtha, 2000 gallons daily as of June 30, 1934. Maximum of field has been 3000 gallons daily; minimum, about 500 gallons daily. **Present Activity:** Cable tools used; no rigs running in August, 1934. **Principal Lease Holders:** San Juan and San Elias claims, only active ones, are operated by Compania Minera San Elias, S. A., and by Motembo Mining Company, S. A., 50%—50% basis.

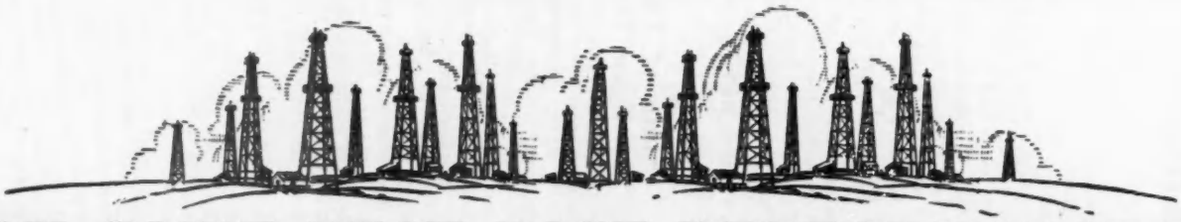
Minas de Bacuranao (Oil)

Location: Field also known as Finca "Las Minas". Located in Barrio de Barreras, Municipality of Guanabacoa, near Bacuranao on the north coast, about 20 kilometers east of Habana, and about an equal distance from Campo Florida, Province of Habana. **Discovery Data:** Crude oil and asphaltic seepages discovered about 1860 by the soundings in the rock crevices. Oil first struck at 61 meters yielding strong hydrocarbonic odor. Deeper wells drilled but work was abandoned. Field later exploited and a 200-foot well drilled. Work again abandoned until June, 1914; a 700-foot well then drilled, which yielded from 3 to 4 barrels daily. Unfavorable drilling conditions on wells over 510 feet. By 1917 Union Oil Company had extracted 721,877 gallons of petroleum; density at 20° Centigrade: .880; ignition point 25° Centigrade; analysis of 100 c. c. yielded 13 percent gasoline and benzine; 35 percent illuminating oil; 35 percent lubricating oil; 20 percent vaseline and paraffin. **Geology:** Creviced limestone and serpentine formations. **Producing Formations:** Various kinds of sandy limestone, serpentine, sandstone, and conglomerations of igneous origin. The producing formation or geologic age is believed to be Eocene or Miocene. **Extent of Development:** Number of wells drilled, about 42. Large number of failures. Production of wells diminishes greatly after being drilled and new ones have to be drilled often. **Deepest Hole:** Union Oil Company, S. A., well, drilled in 1932; depth about 1100 feet. **Productive Area:** Estimated in August, 1934, at about 200 hectares, still undefined. Only petroleum produced. **Production History:** Gravity varies between 25 and 30. Total production to date, about 2,000,000 gallons; production first 6 months 1934, nil. Maximum production per year has been about 500,000 gallons. **Present Activity:** None in August, 1934. Cable tools used. **Principal Lease Holders:** Union Oil Company, S. A., on a royalty basis. Land belongs to a widow.

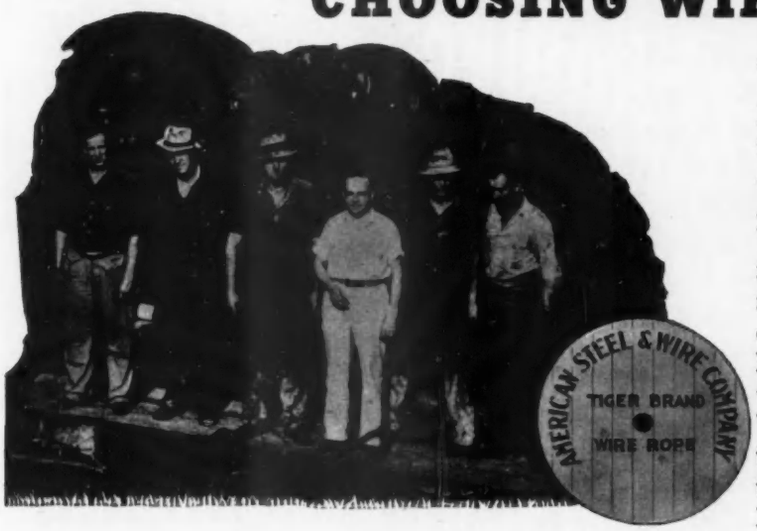
Information on oil fields of Cuba was prepared for The OIL WEEKLY by C. R. Cameron of Habana, Cuba, on data obtained from present and past operators there.

Note: Royal Dutch Shell interests were reported engaged in geophysical exploration work in Cuba early in 1935. Results of these surveys have not been announced.

Horses ARE PICKED *on Past Performance*



YOU CAN'T BEAT PAST PERFORMANCE IN CHOOSING WIRE LINES



TAKE, for example, the experience of Mr. J. T. Akers, of Akers Brothers, Drilling Contractors at Owensboro, Kentucky. Some time ago Mr. Akers purchased 1600 feet of American Steel & Wire Company Tiger Brand Wire Lines—7/8" diameter 6 x 19 left lay. With it he drilled a total of 12,300 ft. of hole, used it to clean and swab 6 wells for a total of 180 days—and is now using it as a pumping line. Here is just one of the countless instances of unusual service that users of Tiger Brand Wire Lines are receiving. It will pay you well to capitalize on their experience—to save time, trouble and money by specifying Tiger Brand on your next order.

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Oil and Gas Fields of Mexico

State of Chiapas

Caimba (Oil)

Location: State of Chiapas; Municipality of Pichucalco; Hacienda de Guadalupe Caimba; field located about 145 kilometers south southwest of Frontera by river and about 70 kilometers south southwest of Villahermosa and 20 kilometers south of Pichucalco. **Discovery Data:** Observation of asphalt seepages led to first drilling. Discovery well was Anglo-Mexican Oilfields' No. 1, completed in March, 1909, at 650 meters (2132 feet) for an initial production of 87 cubic meters of paraffin base oil with a specific gravity of 0.8671. **Geology:** Nature of structure causing accumulation of oil is not known exactly, but it seems that faulting is the principal factor. **Producing Formations:** Tentatively identified by the Institute of Geology of the National University of Mexico as being sands of Miocene age. **Extent of Development:** 4 producers and 5 failures completed in field up to July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** 16 hectares (39.52 acres) as of July 31, 1934. See note. **Production History:** Actual production in the field since discovery of oil has been of small commercial importance. The field produced no oil during the first six months of 1934. **Present Activity:** None. **Principal Lease Holders:** Anglo-Mexican Oilfields

State of San Luis Potosi

El Limon (Oil)

Location: In the States of San Luis Potosi and Veracruz; Municipalities of Villa Geurrero, San Luis Potosi, and Panuco, Veracruz; Lot F., Limon Hidalga; field is about 77 kilometers west southwest of Tampico. **Discovery Data:** In the lagoon of the Limon estate an asphalt seep was noticed in the early days. The discovery well was Compania Petrolera Franco-Espanola's Franco-Espanola 6, completed in September, 1922, at 764.2 meters (2506 feet) for an initial production of 3 cubic meters of oil with a specific gravity of 0.975. **Geology:** Undetermined. **Producing Formations:** Main horizon is a gray limestone belonging to the upper part of the Lower Cretaceous or the lower part of the Upper Cretaceous and yielding asphalt base oil with an average specific gravity of 0.975. **Extent of Development:** 43 producers and 65 failures completed up through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 50.24 hectares (124 acres). See note. **Production History:** Field produced 132.3 cubic meters daily during June, 1934. Number of wells on production then: 35. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Petrolera Franco Espanola.

Ebano (Oil)

Location: Partly in State of San Luis Potosi, partly in State of Veracruz; Municipalities of Villa Guerrero and Valles of the former state and Panuco of Veracruz. Field is about 65 kilometers west southwest of Tampico. **Discovery Data:** Asphalt seepages led to first drilling. Discovery well was Mexican Petroleum Co.'s La Pez 1, completed in April, 1904, at 502.92 meters (1669 feet) for an initial production of 240 cubic meters of oil with a specific gravity of 0.98. **Geology:** Structure is a secondary fold of the great Panuco fold. Accumulation of petroleum is found in the highest parts of the structure affected by the faulting. Also oil is found in those places where igneous intrusions have resulted in cavities. **Producing Formations:** Main producing horizon is the Tamaulipas limestone of the Lower Cretaceous. The asphalt base oil produced has a specific gravity of 0.988. **Extent of Development:** 210 producers and 277 failures completed up to July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 78 hectares (192.57 acres) July 31, 1934. See note. **Production History.** In June, 1934—99 wells on production yielded 35,178 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Mexican Petroleum Co.

San Pedro-La Labor (Oil)

Location: State of San Luis Potosi; Municipality of San Antonio Tancanhuitz; 142 kilometers southwest of Ebano and 199 kilometers southwest of Tampico; on the A. Frac hacienda de San Pedro. **Discovery Data:** Discovery well was Cia Mexicana de Petroleo El Aguila, S. A.'s San Pedro 1, completed in February, 1912 for 3 cubic meters of light paraffin oil 226.81 meters. **Geology:** Probably an anticline. **Producing Formations:** Oil comes from a black calcareous shale of unknown geological age generally encountered about 230 meters from the surface. It is light oil and has a paraffin base. **Extent of Development:** 2 producers and 9 failures concluded to July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 6 hectares (14.82 acres) July 31, 1934. **Production History:** Data not available. **Present Activity:** None. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

State of Tabasco

Belem (Oil)

Location: State of Tabasco; Municipality of Macuspana; Vecindario de las Playas de Jimenez; field is about 5 kilometers northwest of Macuspana and 144 kilometers south of Frontera by river. **Discovery Data:** First wells were drilled following observation of asphalt seepages. Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Belem 1, completed in August, 1926, at 197.51 meters (647.8 feet) for an initial production of 5 cubic meters of paraffin base oil with a specific gravity of 0.9261. **Geology:** Undetermined. **Producing Formations:** Sandy marl of undetermined geological age yielding paraffin base oil with an average specific gravity of 0.9261. **Extent of Development:** 4 producers and no failures were completed in this field from discovery date to July 31, 1934. **Deepest Hole:** Data not available in government offices as of August, 1934. **Productive Area:** Estimated in 1933 at 7.75 acres, or 3.14 hectares. See note. **Production History:** Cumulative total from discovery through 1933: 5736 barrels. Field shut down since 1933. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Petroleo El Aguila, S. A.

Sarlat (Oil)

Location: State of Tabasco; Municipality of Macuspana; Sarlat farm; field located 110 kilometers south southeast of Barra de Frontera by river and about 28 kilometers northeast of Macuspana. **Discovery Data:** Observation of asphalt seepages led to first drilling. Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Sarlat 1-A, completed in February, 1906, at 304.8 meters (999.7 feet) for one half cubic meter daily of paraffin base oil with a specific gravity of 0.83. **Geology:** Structure is a fault which has broken the lower formations and folded the lower formations. **Producing Formations:** Wells drilled in Sarlat reveal a great number of producing horizons not definitely identified except to say that all belong to the Tertiary and all yield the paraffin base oil which has an average specific gravity of about 0.83. **Extent of Development:** Since discovery of the field up through July 31, 1934—3 producers and 22 failures have been completed. **Deepest Hole:** Compania Mexicana de Petroleo El

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MEXICO—State of Tabasco—*Continued*

Aguila, S. A.'s Sarlat 21, abandoned in 1922 as a salt water well at 764 meters (2506 feet). **Productive Area:** Field has not been defined; Estimated at 6.28 hectares or 15.51 acres in July, 1934. **Production History:** From 1915 to 1919—904 barrels, according to government figures; private figures estimate the total recovered to end of 1933 at 13,000 barrels; field shut down or dead in June, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

State of Tamaulipas

Altamira (Oil)

Location: State of Tamaulipas; Southern District; Porcion 11, Municipality of Altamira; field is 55 kilometers southwest of Tampico. **Discovery Data:** Asphalt seeps led to drilling first well. Discovery well was American Institute Fuel and Petroleum Co.'s Altamira 30, completed in June, 1926, at 453 meters (1485.84 feet) for an initial production of 550 cubic meters of oil with a specific gravity of 89.30. **Geology:** Anticlinal structure with faulting as a major feature. Production found only on highest spots of structure where the zones of greatest fracture are found. **Producing Formations:** Oil comes from a limestone found in the base of the Upper Cretaceous and in the upper part of the Lower Cretaceous. Oil is asphalt base with a specific gravity of 0.89. **Extent of Development:** 13 producers and 119 failures completed from discovery up through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Field undefined; productive area estimated at 28.6 hectares (70 acres) July 31, 1934. **Production History:** Figures not available on cumulative production of field since discovery. In June, 1934, however, 8 producers yielded 2565 cubic meters of crude. **Present Activity:** None in August, 1934. **Principal Lease Holders:** American Institute Fuel & Petroleum Co.

La Presa (Gas)

Location: State of Tamaulipas, Municipality of the City of Mier, Rancho de la Alberca; 15 kilometers south of the City of Mier. **Discovery Data:** Discovery well was Ohio Mex Oil Corp.'s La Presa 1, completed in October, 1931, at 614.14 meters (2034 ft.) for an initial production of 376,560 cu. meters daily. **Geology:** Anticlinal structure. **Producing Formations:** Log of the discovery well indicates black limestone and gray sand of undetermined geological age as the producing horizons. **Extent of Development:** Three producers since discovery through July 31, 1934; failures, none. **Deepest Hole:** Data not available. **Productive Area:** 6.28 hectares (15.51 acres) as of July 31, 1934. **Production History:** Figures on cumulative production not available. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Ohio-Mex Oil Corporation.

Rancherias (Gas)

Location: State of Tamaulipas, Municipality of the City of Camargo, public land of Camargo; Porcion Noroeste 19; the field is about 4 kilometers northwest of Camargo. **Discovery Data:** Discovery well of field was Ohio-Mex Oil Corp.'s Rancherias 1, completed in June, 1933, at 386.67 meters (1268.29 feet) for 1,228,000 cubic meters of gas. **Geology:** Anticlinal structure. **Producing Formations:** A gray sand of undetermined age found at 1268 feet. **Extent of Development:** Discovery well was only well drilled in field up to July 31, 1934. **Deepest Hole:** See discovery well. **Productive Area:** As of July 31, 1934, estimated at 3.1416 hectares (7.75 acres.) **Production History:** Not available in August, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Ohio-Mex Oil Corporation. Field now under "Control de Admon. del Pet. Nacional."

Mexico

This map showing the principal oil fields of Mexico is a section reproduced from a copyrighted map of International Map Company, New York

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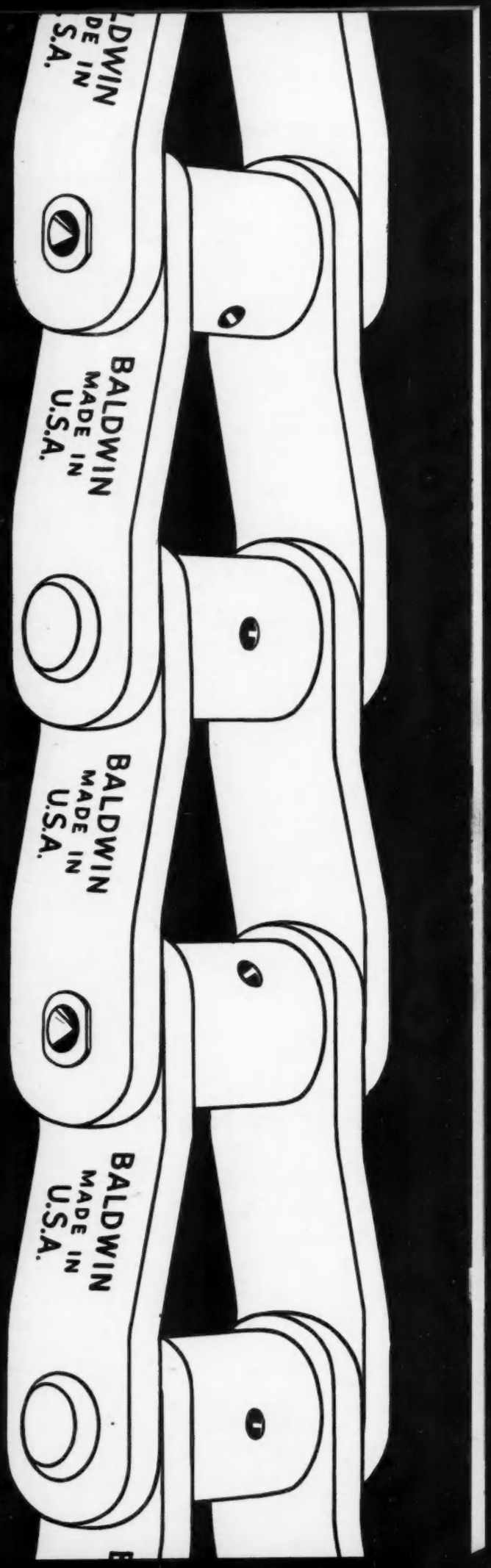

MEXICO—State of Veracruz

Agua Dulce (Oil)

Location: State of Veracruz; Puerto Mexico Municipality; see Tonola.

Alamo (Oil)

Location: State of Veracruz; see Faja de Oro.

Alazan (Oil)

Location: State of Veracruz; Temapache municipality; Alazan hacienda; field is about 42 kilometers northwest of Tuxpan; field classed with Faja de Oro, or "Golden Lane." **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Alazan 4, completed in July, 1912, at 609.61 meters (1999.36 feet) for a daily initial production of 1590 cubic meters of oil with a specific gravity of 0.9153. **Geology:** The structure is a southern continuation of that of Juan Felipe. It is an asymmetrical anticline with two longitudinal faults, one on each flank and both being of great displacement. The anticline has a wavy, or sinuous, crest. **Producing Formations:** Located in a very narrow zone on the crest of the anticline. Main horizon is El Abra limestone of the Lower Cretaceous. It is generally compact. Average specific gravity of oil produced is 0.9153. **Extent of Development:** 9 producers and 17 failures drilled since discovery through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 13 hectares (32.11 acres) in August, 1934. Field is defined on all sides. **Production History:** Figures not available on output prior to 1933; in 1933 total production of the field was 17,443 cubic meters; in June, 1934, two producers in the field were yielding an aggregate of 90.77 cubic meters daily. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Amatlan del Norte (Oil)

Location: State of Veracruz; Amatlan municipality; one of the Golden Lane, or "Faja de Oro" fields; see "Naranjos and Amatlan del Norte."

Amatlan del Sur (Oil)

Location: State of Veracruz; Amatlan municipality; southern part of Amatlan hacienda; one of the Golden Lane, or "Faja de Oro" fields; field is located about 64 kilometers northwest of Tuxpan. **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Zacamixtle 1, completed in October, 1920, at 674.51 meters (2212.4 feet) for a daily initial production of 8000 cubic meters of oil having a specific gravity of 0.926. **Geology:** Structure is a southern continuation of the asymmetrical anticline of Naranjos-Amatlan del Norte field. It has two longitudinal faults, one on each flank. **Producing Formations:** Productive wells located in a very narrow belt along the crest of the anticline. Oil comes from El Abra limestone of the Lower Cretaceous and continues with the same gravity as that produced by the discovery well. **Extent of Development:** 107 producers and 77 failures completed in the field from discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated January 1, 1934, at 378 hectares (933.66 acres). **Production History:** No data on total cumulative production since discovery; in June, 1934, daily production of the field was 609.9 cubic meters from 44 producing wells. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Cacalilao (Oil)

Location: State of Veracruz; one of the Panuco fields; Panuco municipality; Cacalilao hacienda; field located about 43 kilometers west southwest of Tampico. **Discovery Data:** Discovery well was International Petroleum Company's Cacalilao 1-A, completed in April, 1922, at 472.44 meters, for a daily initial production of 480 cubic meters of oil having a specific gravity of 0.982. **Geology:** A northern continuation of the Panuco anticline, with accumulation of petroleum found in the highest parts of the structure where exist cracked zones and cavities. **Producing Formations:** Oil recovered from a limestone found in the upper part of the Lower Cretaceous and in the lower part of the Upper Cretaceous. The oil has an asphalt base and a specific gravity of 0.982. **Extent of Development:** 462 producers and 758 failures completed from discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 706.6 hectares (1745.3 acres). **Production History:** No figures on total production prior to 1933; in 1933 field yielded 647,957 cubic meters of oil; in June, 1934, daily average production from 148 wells was 790.9 cubic meters. **Present Activity:** One rig running. **Principal Lease Holders:** International Petroleum Company; Southern Fuel & Refining Company.

Casiano and Chinampa del Norte (Oil)

Location: State of Veracruz; Chinampa municipality; northern part of Chinampa hacienda; one of the Golden Lane, or "Faja de Oro" fields; located about 67 kilometers north northwest of Tuxpan. **Discovery Data:** Discovery of seepages believed to have caused first drilling; discovery well was Huasteca Petroleum Co.'s Casiano 2, completed in November, 1909, at 470.93 meters (1534.65 feet) for an initial production of 32 cubic meters daily of oil having a specific gravity of 0.9259. **Geology:** The structure, an asymmetrical anticline, is regarded as a southern continuation of the Tepetate anticline. It has two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are limited to a very narrow belt along the crest of the anticline. Oil comes from the generally compact El Abra limestone of the Lower Cretaceous and is of a mixed base, i.e. asphalt-paraffin. **Extent of Development:** 12 producers and 22 failures completed from discovery time through July 31, 1934. **Deepest Hole:** Data not available as of July, 1934. **Productive Area:** Estimated at 73 hectares (180.31 acres) at the end of 1933. **Production History:** No figures available at Universidad Nacional on cumulative total production of field since discovery; in June, 1934, daily average production of the field, coming from 11 producing wells, was 178.17 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Huasteca Petroleum Company.

Cerro Azul (Oil)

Location: State of Veracruz; Cerro Azul hacienda; one of the Golden Lane fields; see "Toteco."

Cerro Viejo (Oil)

Location: State of Veracruz; Temapache municipality; one of the Golden Lane fields; Cerro Viejo hacienda; field is about 42 kilometers west northwest of Tuxpan. **Discovery Data:** Presence of oil seepages caused the first drilling; one of the early wells resulting in a very small amount of production (non-commercial) in 1883. First commercial production was from Cia Mexicana de Petroleo El Aguila, S. A.'s Cerro Viejo 3, completed in November, 1921, at 601.36 meters (1972.46 feet) for a daily initial production 1500 cubic meters of oil with a specific gravity of 0.915. **Geology:** Structure is a southern continuation of the anticline of Potrero del Llano. It is asymmetrical, with two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are located in a very narrow belt on the crest of the anticline. Oil comes from a limestone, generally compact, belonging to the Lower Cretaceous. It is of a mixed base and has a specific gravity of 0.915. **Extent of Development:** 24 producers and 24 failures drilled from discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 37.5 hectares (92.63 acres) at end of 1933. It is not known whether the field is defined on all sides. **Production History:** No

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MEXICO—State of Veracruz—*Continued*

data regarding production of field from discovery time through end of 1932. In 1933 total production was 68,883 cubic meters. In June, 1934, daily average production of the field was 253.7 cubic meters coming from 8 producers. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

Chapapote (Oil)

Location: State of Veracruz; see Faja de Oro.

Chiconcillo-San Miguel (Oil)

Location: State of Veracruz; Tantima municipality; Chiconcillo and San Miguel haciendas; field is about 110 kilometers south southeast of Tampico. **Discovery Data:** Eight seepages observed in Tantima municipality prior to drilling; discovery well was Compania Petrolera de Tepetate's Chiconcillo 1, completed in July, 1918, at 652.88 meters (2141.45 feet) for an initial production of 5575 cubic meters daily of oil having a specific gravity of 0.926. **Geology:** The structure, an asymmetrical anticline, is a continuation of that of San Geronimo, located to the north. Chiconcillo anticline has two longitudinal faults, one on each flank. Crest of the anticline is sinuous. **Producing Formations:** Oil, with a specific gravity of 0.926, comes from El Abra limestone of the Lower Cretaceous. It has a mixed base. **Extent of Development:** 16 producers and 22 failures completed from discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Field regarded as defined on all sides; productive area estimated at 68 hectares (167.96 acres) in August, 1934. **Production History:** No data on production prior to 1933; in 1933 field produced 11,961 cubic meters of oil; daily average production in June, 1934, was 28.53 cubic meters, coming from 9 producing wells. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Petrolera de Tepetate.

Chinampa del Norte (Oil)

Location: State of Veracruz; Chinampa municipality; northern part of Chinampa hacienda; one of the Golden Lane, or "Faja de Oro" fields; see Casiano.

Chinampa del Sur (Oil)

Location: State of Veracruz; Chinampa municipality; one of the Golden Lane, or "Faja de Oro" fields; southern part of Chinampa hacienda; field is located about 65 kilometers north northwest of Tuxpan. **Discovery Data:** First drilling due to oil seepages; discovery well was R. E. Brooks' Ovando 2, completed in December, 1918, at 618.74 meters (2029.46 feet) for a daily initial production of 4000 cubic meters of oil having a specific gravity of 0.925. **Geology:** Structure is an asymmetrical anticline regarded as a southern continuation of the Casiano-Chinampa del Norte anticline. It has two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are located in a narrow zone along the crest of the anticline. Oil comes from the generally compact El Abra limestone of the Lower Cretaceous. Specific gravity of the oil is 0.925. **Extent of Development:** 44 producers and 29 failures completed since discovery date of field through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 160 hectares (395.2 acres). **Production History:** No data on total production of field; daily average production from 17 wells in June, 1934, was 206.9 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Successors to R. E. Brooks.

Comales (Oil)

Location: State of Veracruz; Chontla municipality; 95 kilometers south southwest of Tampico; Lot 1, Comales hacienda. **Discovery Data:** Discovery well was Capuchinas Oil Co.'s Comales 1, completed in May, 1921, at 716.28 meters (2349.4 feet) for a daily initial production of 9 cubic meters of oil. Gravity of initial production undetermined. **Geology:** Undetermined. **Producing Formations:** Department of Petroleum and Universidad Nacional do not have data concerning the producing formations. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 15.7 hectares (38.78 acres). **Production History:** Figures on production prior to 1933 not available. In 1933 field yielded 3842 cubic meters. Daily average production from 3 wells in June, 1934, was 5.16 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Capuchinas Oil Company.

Concepcion (Oil)

Location: State of Veracruz; Municipality of Minatitlan; Hacienda Concepcion; 40 kilometers southeast from Minatitlan and about 59 kilometers south southeast of Puerto Mexico. **Discovery Data:** Seepages led to drilling. Discovery well was Pearson & Sons' Concepcion 1, completed in June, 1909, at 76.2 meters (250 feet) for a daily initial production of 2 cubic meters of oil with a specific gravity of 0.915. **Geology:** Salt dome. Rocks which crop out in the field are Pliocene and wells penetrate rocks of the Miocene before reaching the cap. **Producing Formations:** Paraffin base production from cap rock (limestone and dolomite), yielded oil which averaged from 0.845 to 0.915 in specific gravity. **Extent of Development:** 3 producers and 28 failures drilled from discovery to July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 43.98 hectares, or 108.63 acres, in July, 1934. **Production History:** From discovery to end of 1933: 37,617 barrels; output of field never of commercial significance. Field listed as abandoned in August, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Pearson & Son's successor.

Dos Bocas (Oil)

Location: Field sometimes called San Diego de la Mar; State of Veracruz; Tamalin municipality; San Diego de la Mar hacienda; field is located about 90 kilometers south southeast of Tampico. **Discovery Data:** First drilling resulted from observation of oil seepages; discovery well was Pennsylvania Oil Company of Mexico's Dos Bocas 3 (or San Diego de la Mar 3), completed in July, 1908, at 555.93 meters (1823.45 feet) for a daily initial production of 16,000 cubic meters of oil having a specific gravity of 0.939. Properties of Pennsylvania Oil Company of Mexico subsequently were taken over by Compania Mexicana de Petroleo El Aguila, S. A. This was the first really great producing well of Mexico. It burned. **Geology:** Structure is an asymmetrical anticline with a large fault on one flank. Production is limited to a very narrow zone lengthwise along the crest. Not all the crest is productive—only the highest parts. **Producing Formations:** A generally compact limestone, called El Abra limestone, of the Lower Cretaceous, yields an asphalt base oil with a specific gravity of 0.939. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 9.42 hectares (23.267 acres). Field is defined on all sides. **Production History:** Total production in 1933 was 5014 cubic meters; daily average production in June, 1934, was 10.57 cubic meters, coming from one producing well. Specific gravity of the oil is 0.939. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

El Burro (Oil)

Location: State of Veracruz; Municipality of Puerto Mexico; Gavilan Sur farm; field is about 40 kilometers east northeast of Nanchital and about 47 kilometers east southeast of Puerto Mexico. **Discovery Data:** Preliminary geophysics, then drilling. Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s El Burro 1, completed in May, 1931, at 854.72 meters (2793.5 feet) for an initial production of 480 cubic meters per day of oil with a specific gravity of 0.844. **Geology:** Salt dome. **Producing Formations:** Lower Miocene sands, generally

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MEXICO—State of Veracruz—*Continued*

separated one from another by thin layers of marl, and productive both above and on flanks of the dome. **Extent of Development:** 46 wells, including producers and failures, drilled from discovery up to July 31, 1934. **Deepest Hole:** El Aguila's El Burro 47; dry in Oligocene at 5423 ft. **Productive Area:** Estimated at 119.38 hectares (294.87 acres) July 31, 1934; field not defined. **Production History:** From discovery to end of 1933: 4,840,107 barrels during first nine months of 1934: 1,266,869 barrels; daily average of field from 36 wells in June, 1934, was 591.6 cubic meters. **Present Activity:** Six rotary rigs running in August, 1934. **Principal Lease Holders:** Cia Mexicana de Petroleo, S. A.

El Molino (Oil)

Location: State of Veracruz; Temapache municipality; El Molino hacienda; field is located about 22 kilometers west of Tuxpan. **Discovery Data:** First drilling due to observation of oil seepages; discovery well was Penn Mex Fuel Company's El Molino 2, completed in December, 1917, at 826.96 meters (2712.43 feet) for a daily initial production of 8000 cubic meters of oil having a specific gravity of 0.9765. **Geology:** Undetermined. **Producing Formations:** Asphalt base production comes from white and coffee colored limestone. Oil has a specific gravity of 0.9765. **Extent of Development:** 1 producer and 5 failures drilled from discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 3 hectares (7.41 acres). **Production History:** No data on total production of field; in August, 1934, field was not producing. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Penn Mex Fuel Company.

El Plan (Las Choapas) (Oil)

Location: State of Veracruz; Municipality of Minatitlan; 45 kilometers southeast of Nanchital; 51 kilometers southeast of Puerto Mexico; 54 kilometers east southeast of Minatitlan; field is centered on the Hacienda El Plan. **Discovery Data:** Geophysics led to drilling. Discovery well was the Real Estate Co. of Mexico.'s El Plan 1, completed in February, 1931, at 665.36 meters (2182 feet) for an initial production of 159 cubic meters per day of paraffin base oil having a specific gravity of 0.927. **Geology:** Salt dome. **Producing Formations:** Oil comes from Miocene sands separated one from another by marls. Sands are productive on the flanks of the dome only. No cap rock production. Average specific gravity of oil produced same as in discovery well. **Extent of Development:** 26 oil wells and 7 failures completed in the field since discovery date through July 31, 1934. **Deepest Hole:** El Aguila's El Plan 36; drilled November 15, 1934, in Miocene at 5485 feet. **Productive Area:** Field not defined on all sides as of August, 1934, but estimated at 72.32 hectares, or 178.63 acres. **Production History:** From discovery to end of 1933: 4,248,107 barrels: total produced during first nine months of 1934: 2,759,375 barrels in June, 1934, daily average production from 23 producers was 1,120.6 cubic meters. **Present Activity:** 5 rotary rigs running in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Faja de Oro (Oil)

Location: State of Veracruz; see also Alazan. Faja de Oro ("Golden Lane") includes the following fields: Chapapote, Alamo, Jardin, Paso Real, and San Isidro; all in the State of Veracruz and in Temapache municipality; haciendas on which above fields are located include Chapapote, Alamo, Jardin, Paso Real and San Isidro. The district is about 31 kilometers west of Tuxpan. **Discovery Data:** Observation of oil seepages caused first drilling; discovery well was Penn Mex Fuel Co.'s Alamo 1, completed in May, 1913, at 666.29 meters (2185.63 feet) for a daily initial production of 48 cubic meters of oil having a specific gravity of 0.9099. **Geology:** Structure is a southern extension of the Tierra Blanca anticline, an asymmetrical one with two longitudinal faults, one on each flank. **Producing Formations:** Productive wells in this district are located in a very narrow belt, or zone, along the crest of the anticline. The productive formation is a limestone, generally compact, called El Abra limestone and belonging to the Lower Cretaceous. The oil has a mixed base and a specific gravity that varies from 0.86 to 0.927. **Extent of Development:** 100 producers and 105 failures completed from discovery time through July 31, 1934. **Deepest Hole:** Penn Mex Fuel Co.'s El Jardin 35, which stopped drilling at 10,585 feet August 30, 1931. The bottom formation was limestone. The well did not produce at this depth. **Productive Area:** Estimated in August, 1934, at 257.5 hectares (636 acres); field is defined on all sides. **Production History:** No record of total production from discovery time through 1933; in June, 1934, daily average production was 392.33 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Penn Mex Fuel Company.

Filisola (Francita) (Oil)

Location: State of Veracruz; Municipality of Minatitlan; Filisola Hacienda; field is about 46 kilometers southeast of Minatitlan and about 60 kilometers south southeast of Puerto Mexico. **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Filisola 7, completed in December, 1923, at 865.62 meters (2839.23 feet) for an initial daily production of 16 cubic meters of paraffin base oil with a specific gravity of 0.9245. **Geology:** Salt dome, roughly oval in shape. **Producing Formations:** Oil comes from Miocene sands alternating with layers of shale. **Extent of Development:** 87 producers and 29 failures completed in field from discovery date through July 31, 1934. **Deepest Hole:** El Aguila's Filisola 48; dry in Aligocene at 4479 ft. **Productive Area:** Estimated at 387 hectares (959.89 acres) in July, 1934. **Production History:** From discovery to end of 1933: 14,731,500 bbls. Total produced in first 9 months of 1934: 647,394 barrels. Daily average production from 51 producers in June was 380.97 cubic meters. Present Activity: None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A., is sole operator in the field.

Francita (Oil)

Location: State of Veracruz; see Filisola.

Furbero (Oil)

Location: State of Veracruz; Municipality of Coatzintla; Furbero Hacienda; field is located about 80 kilometers southwest of Tuxpan and 25 kilometers west southwest of Papantla. **Discovery Data:** Oil seepages caused first drilling. Discovery well was Oilfields of Mexico Co.'s Furbero 2, completed in October, 1907, at 580.64 meters, for an initial daily production of four cubic meters. **Geology:** Anticline modified to a certain extent by an igneous intrusion. The theory is that the intrusion took place after the folding. **Producing Formations:** Two classes of horizons, one of which is a metamorphosed shale and the other of which is a "gabbro." There are three zones productive of oil, two of which belong to the first classification above, the third zone being that of the igneous rock. Oil from these horizons varies in specific gravity from 0.9067 to 0.8564 and is of mixed base, i.e., asphalt and paraffin. **Extent of Development:** 14 producers have been completed from discovery date of the field up through July 31, 1934. No data on failures. **Deepest Hole:** El Aguila's Furbero 19; drilled to 4640; initial production 7 bbls. **Poductive Area:** Estimated in August, 1934, at 32.5 hectares (80.27 acres); field defined on all sides. **Production History:** Cumulative production since discovery to end of 1933: 2,114,615 bbls; total produced first 9 months of 1934: 54,050 bbls. Daily average production of the field in June, 1934, was 34 cubic meters, coming from 9 producers. **Present Activity:** No rigs running in August, 1934. **Principal Lease Holder:** Oilfields of Mexico Company.

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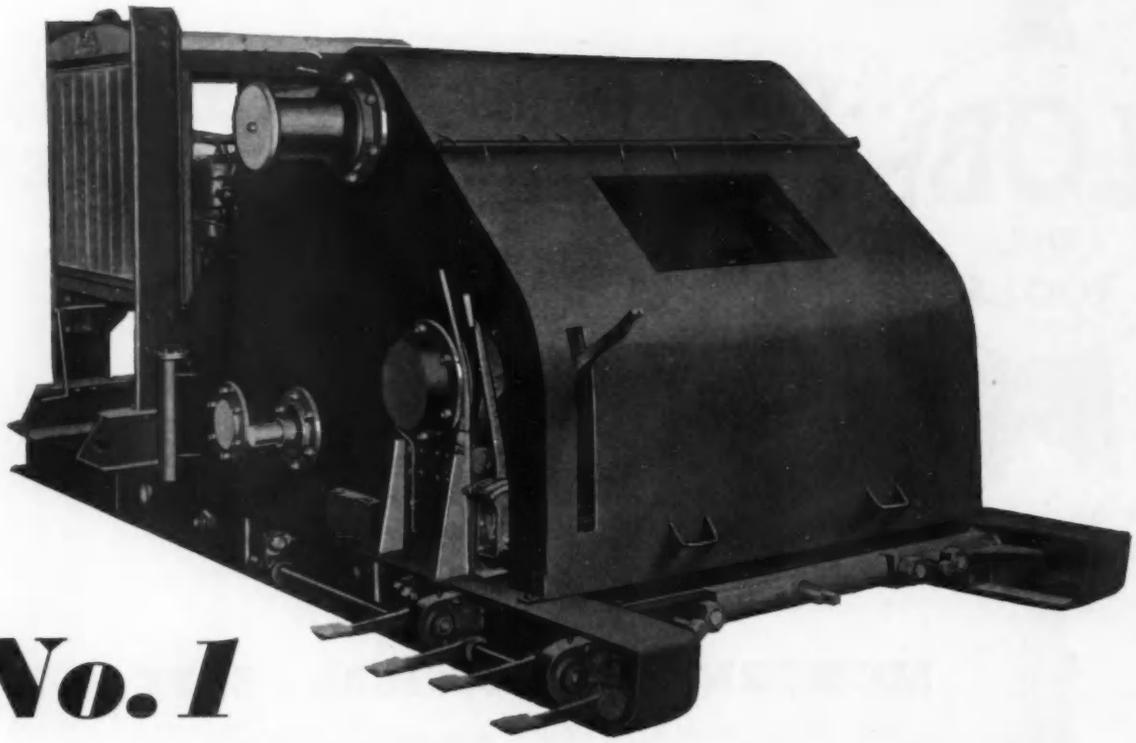

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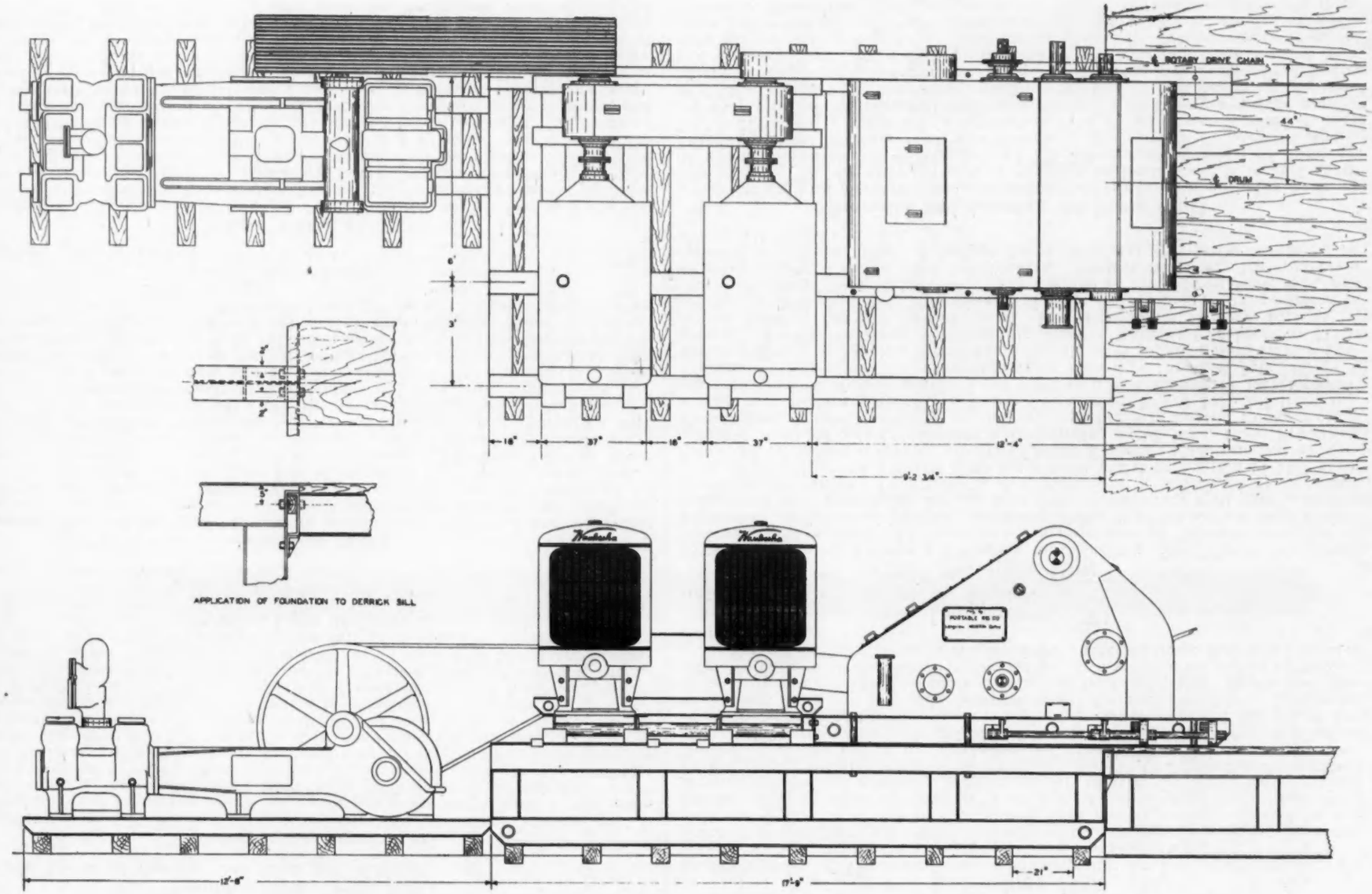

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MEXICO—State of Veracruz—*Continued*

Golden Lane Fields (Oil)

Location: State of Veracruz; See "Faja de Oro."

Hacienda Cincuenta (Oil)

Location: State of Veracruz; Tantima municipality; Cincuenta hacienda; field is located about 57 kilometers north northwest of Tuxpan and 105 kilometers south southeast of Tampico. **Discovery Data:** First drilling due to seepages; discovery well was Blas C. Mar's Page 1, completed in March, 1928, at 871.21 meters (2857.57 feet), for a daily initial production of 8 cubic meters of oil having a specific gravity of 0.93. **Geology:** No data concerning the structure of this field. **Producing Formations:** According to the log of Page 1, the productive formation is a limestone. While the production is of mixed base (asphalt and paraffin), the geological identity of the producing formation has not been established. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 9 hectares (21.83 acres). **Production History:** Institute of Geology had no data as of July, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Blas C. Mar.

Isleta de Capoacan (Oil)

Location: State of Veracruz; see San Carlos.

Ixhuatlan (Oil)

Location: State of Veracruz; Minatitlan municipality; Ixhuatlan hacienda; field is about 18 kilometers southeast of Puerto Mexico and 37 kilometers northeast of Minatitlan. **Discovery Data:** First drilling resulted from observation of oil seepages; discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Ixhuatlan 1, completed in April, 1911, at 257.72 meters (845.32 feet) for an initial daily production of 79 cubic meters of oil with a specific gravity of 0.87. **Geology:** Salt dome. **Producing Formations:** Consist of Miocene sands alternating with shales. Sands are encountered above the mass of salt. They yield a paraffin base oil. **Extent of Development:** 17 producers and 17 failures completed in field from discovery date through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 53.4072 hectares (132 acres). **Production History:** Production from 1913-1917, inclusive, totaled 52,548 cubic meters. Total produced to end of 1933: 450,700 bbls. **Present Activity:** None; field abandoned as of August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

Jardin (Oil)

Location: State of Veracruz; see Faja de Oro.

Juan Felipe (Oil)

Location: One of the Golden Lane, or "Faja de Oro", fields; state of Veracruz; Tepetzintla municipality; San Felipe hacienda; field is located about 51 kilometers northwest of Tuxpan. **Discovery Data:** Seepages responsible for first drilling; discovery well was Tamiahua Petroleum Co.'s Juan Felipe 1, completed in April, 1914, 589.78 meters, (1934.48 feet) for a daily initial production of 320 cubic meters of oil having a specific gravity of 0.9274. **Geology:** The structure is a southern continuation of that of Toteco-Cerro Azul; it is an asymmetrical anticline with two longitudinal faults, one on each flank. Productive wells are located in a very narrow belt along the crest of the anticline. **Producing Formations:** Oil comes from El Abra limestone of the Lower Cretaceous and has a specific gravity corresponding with that found in the discovery well. **Extent of Development:** 8 producers and 10 failures completed from discovery time through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Estimated January 1, 1934, at 21.99 hectares (54.31 acres). **Production History:** No figures available on total production of field since discovery. In August, 1934, the field produced nothing. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Tamiahua Petroleum Company.

La Pitahaya (Oil)

Location: State of Veracruz; Tantima municipality; La Pitahaya hacienda; field is located about 112 kilometers south of Tampico. **Discovery Data:** First drilling believed to have been caused by presence of oil seepages in vicinity; discovery well was Huasteca Petroleum Company's Tres Hermanos 3, completed in November, 1923, at 969.27 meters (3179.2 feet) for an initial production of 96 cubic meters daily of oil having a specific gravity of 0.78. **Geology:** Undetermined by the Geological Institute of the National University. **Producing Formations:** According to the log of the discovery well, the oil comes from a calcareous clay of black and coffee color and of undetermined geologic age. It is not known whether the base of the petroleum is asphalt, paraffin, or mixed. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 3.1416 hectares (7.76 acres) in August, 1934. **Production History:** No data on total cumulative production; field was not producing in August, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Huasteca Petroleum Co.

Las Choapas (Oil)

Location: State of Veracruz; see El Plan.

Mecatepec (Oil)

Location: State of Veracruz; Tihuatlan municipality; San Miguel Mecatepec hacienda; field is about 25 kilometers north northwest of Papantla and some 57 kilometers southwest of Tuxpan. **Discovery Data:** It is not known what surface indications were responsible for the first drilling; discovery well was Compania Mexicana de Petroleo El Aguila S. A.'s Mecatepec 4, completed in February, 1928, at 1099.72 meters (3607.08 feet) for a daily initial production of 1121 cubic meters of oil having a specific gravity of 0.898. **Geology:** Undetermined by Universidad Nacional and Departamento de Petroleo as of June, 1934. **Producing Formations:** A hard, laminated or slaty clay probably belonging to the Eocene or the very highest part of the Upper Cretaceous. Mixed base oil from this horizon varies in specific gravity from 0.898 to 0.9044. **Extent of Development:** 2 producers and 3 failures completed from discovery through July 31, 1934. **Deepest Hole:** El Aguila's Mecatepec 6; depth, 8249 ft.; dry; bottomed in Cretaceous. **Productive Area:** Estimated in August, 1934, at 6.28 hectares (15.51 acres). Field is not yet defined on all sides. **Production History.** Figures on production from discovery through end of 1933: 692,398 bbls.; total produced in first 9 months of 1934: 28,982 bbls.; daily average of the field in June, 1934, was 23 cubic meters, coming from 3 producers. **Present Activity:** One rotary rig running in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

Naranjos and Amatlan del Norte (Oil)

Location: State of Veracruz; Amatlan municipality; one of the Golden Lane, or "Faja de Oro" fields; northern part of Amatlan hacienda; field is located about 64 kilometers northwest of Tuxpan and 132 kilometers southwest of Tampico. **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila S. A.'s Naranjos 1, completed in September, 1913, at 574.75 meters (1885.18 feet) for a daily initial production of 8000 cubic meters of oil having a specific gravity of 0.925. **Geology:** Asymmetrical anticline regarded as a southern continuation of the structure of Chinampa Sur. The structure has two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are located in a very narrow belt along the crest of the anticline. Production comes from El Abra limestone of the Lower Cretaceous and has a specific gravity of 0.925. **Extent of Development:** 37 producers and 19 failures completed in field from

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MEXICO—State of Veracruz—*Continued*

discovery time through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated January 1, 1934, at 127 hectares (313.79 acres). **Production History:** No data on total production through 1933; in June, 1934, the field yielded daily 353.3 cubic meters from 9 wells. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

Panuco (Oil)

Note: There is a great number of fields in Panuco district, each located on the large Panuco structure, and each called "Panuco", with colloquial designation one from another.

Location: State of Veracruz; Panuco municipality; center of the great field is located about 40 kilometers southwest of Panuco. **Discovery Data:** Very small seepages observed prior to drilling; discovery well was East Coast Oil Co.'s Tierritas Blancas 401, completed in September, 1910, at 538.2 meters (1765.3 feet) for a daily initial production of 159 cubic meters of oil with a specific gravity of 0.981. **Geology:** Panuco structure is a great, irregular dome made up of smaller domes having generally a common base and separated at the crests, with the accumulations of oil associated with the elevated parts. The dome was the result of the burying of a mountain which had the form of a plateau. The structure is complicated by great faults in addition to containing numerous cavities suitable for circulating waters. The faulted zones, cavities and fractures generally are connected by networks of smaller fractures and channels. **Producing Formations:** Oil comes from limestone of no fixed or constant horizon, since the accumulation of oil is governed not only by relative altitude on the structure, but also by the presence of cavities and zones of fracture in the limestone. Production is taken from the lower part of the Upper Cretaceous and the upper part of the Lower Cretaceous. The oil has an asphalt base and an average specific gravity of 0.981. **Extent of Development:** 945 producers and 1035 failures completed from discovery date through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Calculated on the basis that each well drains a circular area with a radius of 100 meters, the productive area of the field was figured at 960.84 hectares (2373.24 acres) in August, 1934. **Production History:** Completed data not available; during 1933 the field produced 841,436 cubic meters; in June, 1934—260 producers were yielding daily 2074.2 cubic meters. **Present Activity:** Data not available. **Principal Lease Holders:** East Coast Oil Co., Kern Mex Oil Fields; Control de Admon. del Petr. Nacional.

Paso Real (Oil)

Location: State of Veracruz; see Faja de Oro.

Potrero del Llano (Oil)

Location: State of Veracruz; Temapache municipality; one of the Faja de Oro, or "Golden Lane," fields, Potrero del Llano hacienda; field is about 160 kilometers south southeast of Tampico and about 45 kilometers northwest of Tuxpan. **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Potrero del Llano 4, completed in December, 1910, at 582.47 meters (1910.5 feet) for a daily initial production of 15,900 cubic meters of oil having a specific gravity of 0.922. **Geology:** An asymmetrical anticline which is a southern continuation of that of Alazan. The anticline has two longitudinal faults, each of great displacement. One fault is on each flank. **Producing Formations:** Productive wells completed in a very narrow zone along the crest of the anticline. Oil is obtained from the generally compact El Abra limestone of the Lower Cretaceous and has an asphalt base. Its specific gravity is the same as that found in the discovery well. **Extent of Development:** 11 producers and 10 failures completed in the field since discovery date through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated January 1, 1934, at 21 hectares (51.9 acres). **Production History:** No data on total production prior to 1933; in 1933 field yielded 59,200 cubic meters; in June, 1934, daily average production from 9 wells was 334.6 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo El Aguila, S. A.

Poza Rica (Oil and Gas)

Location: State of Veracruz; Coatzintla municipality; Poza Rica hacienda; field is located about 64 kilometers south southwest of Tuxpan. **Discovery Data:** No data concerning cause of original drilling; discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Poza Rica 2, completed in July, 1930, at 2047.2 meters, (6714.8 feet), for an initial daily production of 5 cubic meters of oil and 2882 cubic meters of gas. Specific gravity of the oil was 0.772. **Geology:** Not much data is available concerning the structure of this great field, but the Universidad Nacional de Mexico says it probably is an anticline somewhat similar to the Faja de Oro anticline. **Producing Formations:** Oil comes from a dark limestone supposedly belonging to the Cretaceous system but not definitely located in that system, i.e. it has not been possible to determine its exact geologic age. The limestone is generally found around 2200 meters (7216 feet) and yields oil with a specific gravity of 0.772. **Extent of Development:** 4 producers and no failures completed from discovery time through July 31, 1934. **Deepest Hole:** El Aguila's Poza Rica 6; depth, 7774 ft.; initial production 4000 bbls. daily; Cretaceous. **Productive Area:** Estimated in August, 1934, at 12.56 hectares (31 acres); field is not defined on all sides. **Production History:** Total production end of 1933: 997,514 bbls; total produced in first 9 months of 1934: 2,359,317 bbls.; daily production in June, 1934, coming from 2 wells; was 1,373.2 cubic meters. **Present Activity:** 6 rotary rigs running in December, 1934. **Principal Lease Holders:** Compania Mexicana de Petrole El Aguila, S. A.; Standford & Co., Ltd.

San Carlos (Isleta de Capoacan) (Oil)

Location: State of Veracruz; Municipality of Minatitlan; Lot 48 of Capoacan; field is about 17 kilometers southeast of Minatitlan and 33 kilometers south southwest of Puerto Mexico. **Discovery Data:** Early drilling based on oil seepages. Discovery well was Jones & Co.'s San Carlos 2, completed in May, 1934, at 669.95 meters (2197.43 feet) for an initial daily production of 10 cubic meters of paraffin base oil having a specific gravity of 0.899. **Geology:** Salt dome; top of salt generally encountered at about 650 meters (2132 feet). **Producing Formations:** Miocene sands alternating with marls—generally productive above the mass of salt. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 15.708 hectares (38.8 acres) in 1933; no extensions since then. **Production History:** No figures available on total production of field; San Carlos was abandoned as improductive in August, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Jones & Co., or successor.

San Cristobal-Capoacan (Oil)

Location: State of Veracruz; Isthmus of Tehuantepec; Municipality of Minatitlan; field is about 28 kilometers south southwest of Minatitlan and 63 kilometers south of Puerto Mexico. **Discovery Data:** Drilling followed discovery of oil seepages; discovery well was Pearson & Son's San Cristobal 1, completed in 1902 at 352.2 meters (1155.21 feet) for an unknown initial production of oil with a specific gravity of 0.892. **Geology:** Salt dome. Cap consists of limestone, dolomite, gypsum and sulphur. Maximum thickness of the cap is 116 meters (380.48 feet). On the surface of the field are outcroppings of Pliocene rocks, but the Miocene must be penetrated before reaching the cap. **Producing Formations:** Paraffin base oil with a specific gravity of 0.892 is cap rock production. It is Miocene oil. **Extent of Development:** 42 oil wells and 48 failures completed in field from time of discovery through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 15.708 hectares (38.8 acres). **Production History:** Total cumulative production of field from discovery

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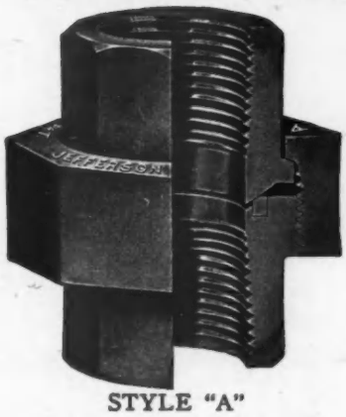
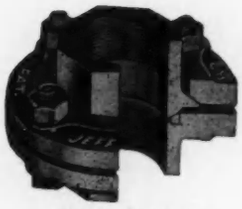


STYLE "A"

Pressure Rating Data
JEFFERSON STYLE "A" UNIONS
Hydraulic Pressure Ratings

Size	Test Pressure	Oil, Gas and Water	*Steam Pressure
⅛"	4000 lbs.	1500 lbs.	500 lbs.
¼"	4000 lbs.	1500 lbs.	500 lbs.
⅜"	4000 lbs.	1500 lbs.	500 lbs.
½"	4000 lbs.	1500 lbs.	500 lbs.
¾"	4000 lbs.	1500 lbs.	500 lbs.
1"	4000 lbs.	1500 lbs.	500 lbs.
1¼"	4000 lbs.	1500 lbs.	500 lbs.
1½"	4000 lbs.	1500 lbs.	500 lbs.
2"	4000 lbs.	1500 lbs.	500 lbs.
2½"	3000 lbs.	1200 lbs.	300 lbs.
3"	2000 lbs.	800 lbs.	300 lbs.
3½"	2000 lbs.	800 lbs.	300 lbs.
4"	2000 lbs.	800 lbs.	300 lbs.

*NOTE:—For use with saturated steam or superheated steam where the total temperature does not exceed 550 degrees Fahr.



STYLE "B"

Pressure Rating Data
JEFFERSON FLANGE UNIONS
STYLE "B"
Hydraulic Pressure Ratings
Style "B" Three Part Flange Union

Size	Test Pressure	Oil, Gas and Water	Steam Pressure
2"	2000 lbs.	800 lbs.	250 lbs.
3"	1500 lbs.	600 lbs.	250 lbs.
4"	1500 lbs.	600 lbs.	250 lbs.
6"	1000 lbs.	400 lbs.	250 lbs.
8"	800 lbs.	300 lbs.	200 lbs.

STYLE "D"

STYLE "E"

Pressure Rating Data
JEFFERSON FLANGE UNIONS
STYLES "D" and "E"
Hydraulic Pressure Ratings

Size	Test Pressure "D"	Test Pressure "E"	Oil, Gas and Water "D"	Oil, Gas and Water "E"
2"	4000 lbs.	6000 lbs.	1600 lbs.	2500 lbs.
2½"	3000 lbs.	5000 lbs.	1200 lbs.	2000 lbs.
3"	3000 lbs.	5000 lbs.	1200 lbs.	2000 lbs.
3½"	3000 lbs.	5000 lbs.	1200 lbs.	2000 lbs.
4"	3000 lbs.	5000 lbs.	1200 lbs.	2000 lbs.
5"	1500 lbs.	3000 lbs.	600 lbs.	1200 lbs.
6"	1500 lbs.	3000 lbs.	600 lbs.	1200 lbs.
8"	1250 lbs.	2500 lbs.	500 lbs.	1000 lbs.
10"	1250 lbs.	2500 lbs.	500 lbs.	1000 lbs.
12"	1250 lbs.	.....	500 lbs.	.....

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MEXICO—State of Veracruz—*Continued*

date through 1917 was 207,000 cubic meters, according to gov't figures; total cumulative through end of 1933: 1,368,143 bbls. Field now abandoned. **Present Activity:** None. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S.A.

San Diego de la Mar (Oil)

Location: State of Veracruz; Tamalin municipality; San Diego de la Mar hacienda; 90 kilometers south southeast of Tampico; see Dos Bocas.

San Geronimo (Oil)

Location: State of Veracruz; Tamalin municipality; San Geronimo hacienda; field is across the Estero de Carbajal from San Diego pool and 92 kilometers south southwest of Tampico. **Discovery Data:** Early drilling thought to have been caused by observation of a seepage on San Geronimo hacienda; discovery well was Compania Mexicana de Petroleo El Aguila, S.A.'s San Geronimo 2, completed in November, 1921, at 717.8 meters (2354.38 feet) for a daily initial production of 8000 cubic meters of oil having a specific gravity of 0.972. **Geology:** The structure is an asymmetrical anticline regarded as a southern extension of the anticline on which Dos Bocas field is located. It has two longitudinal faults, one on each flank. **Producing Formations:** El Abra limestone of the Lower Cretaceous. Production is from faults, cavities and fissures. **Extent of Development:** 8 producers and 35 failures drilled since discovery through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Estimated in August, 1934, at 14.79 hectares (36.5 acres); field defined on all sides. **Production History:** Figures on production prior to 1933 not available; production during 1933 was 12,954 cubic meters; daily average production from 3 wells during June, 1934, was 912 cubic meters of oil with a specific gravity of 0.972. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S.A.

San Isidro (Oil)

Location: State of Veracruz; see Faja de Oro.

San Miguel (Oil)

Location: State of Veracruz; Tantima municipality; San Miguel hacienda; see "Chiconcillo-San Miguel".

San Sebastian (Oil)

Location: State of Veracruz; Tamiahua municipality; San Sebastian hacienda; field is located about 115 kilometers south southeast of Tampico and 52 kilometers north northwest of Tuxpan. **Discovery Data:** Several seepages on San Sebastian hacienda; discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Tierra Blanca 2, completed in April, 1914, at 980.24 meters (3215.19 feet) for an initial daily production of 3 cubic meters of oil having a specific gravity of 0.958. **Geology:** No data in archives of Universidad de Mexico. **Producing Formations:** According to the log of the discovery well, the producing formation is a blue clay of undetermined geological age. **Extent of Development:** 1 producer and 4 failures completed from discovery time through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Data insufficient to calculate area as of August, 1934. **Production History:** During 1933, field yielded 3,598 cubic meters; daily average production from one well in June, 1934, was 3.4 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Soledad (Oil)

Location: State of Veracruz; Municipality of Minatitlan; Octeapan hacienda; field is about 20 kilometers south of Minatitlan and 53 kilometers south southwest of Puerto Mexico. **Discovery Data:** Discovery of oil seepages caused first drilling. Discovery well was Pearson & Son's Soledad 6, completed in 1910 at 91 meters (298.48 feet) for an initial production of 3 cubic meters daily. **Geology:** Salt dome; surface rocks in the field are Pliocene; but Miocene formation is penetrated before reaching caprock. **Producing Formations:** Oil is produced principally from cap rock composed of limestone, gypsum and marls, although some of the oil is produced from a sand above the salt. Only the porous parts of the cap rock are productive. **Extent of Development:** 11 producers and 18 failures completed from discovery date through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Estimated August, 1934, at 18 hectares (44.46 acres). **Production History:** Production total for years 1914, 1915 and 1916 was 3926 cubic meters. Soledad's production from discovery to end of 1933 estimated at 167,000 barrels. Field listed as abandoned in August, 1934. **Present Activity:** None. **Principal Lease Holders:** Successors of Pearson & Son.

Tanguijo (Oil)

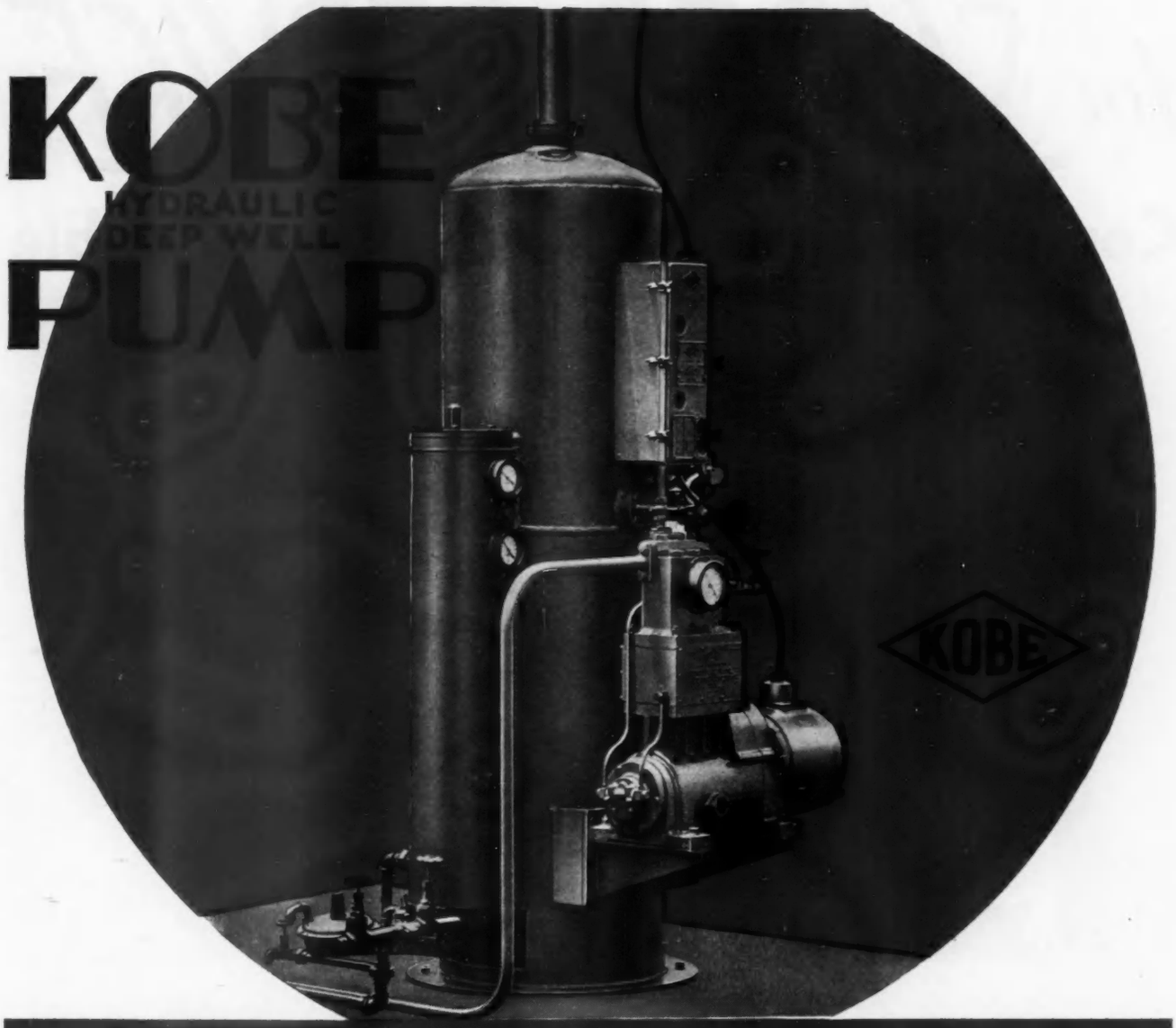
Location: State of Veracruz; Tamiahua municipality; Tanguijo hacienda; field is located about 120 kilometers south southeast of Tampico and 31 kilometers north northwest of Tuxpan. **Discovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila S. A.'s Tanguijo 11, completed in January, 1911, at 469.3 meters (1539.3 feet) for an initial production of 1 cubic meter of oil with a specific gravity of 0.949. **Geology:** Type of structure responsible for accumulation of oil in this field is not exactly known. It seems the accumulation ought to be due to the fracturing of the sandy clays by dikes. (The accumulations are found very irregularly). **Producing Formations:** No definite producing formation exists. The formation is classed as belonging in the Upper Tertiary and consists of a white shaly clay (arcilla pizarrosa blanca). The oil has a paraffin base and a specific gravity of 0.949. **Extent of Development:** 18 producers and 32 failures completed from discovery time through July 31, 1934. **Deepest Hole:** El Aguila's Tanguijo 3; depth, 3544 ft.; initial production, 3 bbls. daily. **Productive Area:** Estimated at 53 hectares (130.9 acres) in July, 1934. **Production History:** Production to end of 1933: 454,492 bbls. First 9 months of 1934: 9072 bbls. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Teapa (Oil)

Location: State of Veracruz; Municipality of Puerto Mexico; farm of Gavilan Rabasa; field is located about 12 kilometers east southeast of Puerto Mexico and about 47 kilometers northeast of Minatitlan. **Discovery Data:** Compania Mexicana de Petroleo El Aguila, S. A.'s Teapa 10 was the discovery well of the field. It was completed in May, 1928, at 229.82 meters (753.8 feet) for 207 cubic meters of paraffin base oil having a specific gravity of 0.82. **Geology:** Salt dome. **Producing Formations:** Oil comes from a series of Miocene sands alternating with shales encountered above the salt mass. **Extent of Development:** 11 producers completed from discovery through October, 1929; 9 failures completed from discovery through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 59.6 hectares (147.21 acres). Field defined on all sides. **Production History:** Figures prior to 1933 not available; during 1933 field produced 37 cubic meters of oil; in August, 1934, the field was not producing. However, the field is not exhausted. Cumulative total of "New Teapa" field to end of 1933: 32,281 barrels. **Present Activity:** None. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Tecuanapa (Oil)

Location: State of Veracruz; Municipality of Minatitlan; Tecuanapa Hacienda; field is located 97 kilometers south southeast of Puerto Mexico. **Discovery Data:** First drilling based on observation of oil seepages; discovery well was Cia Mex-



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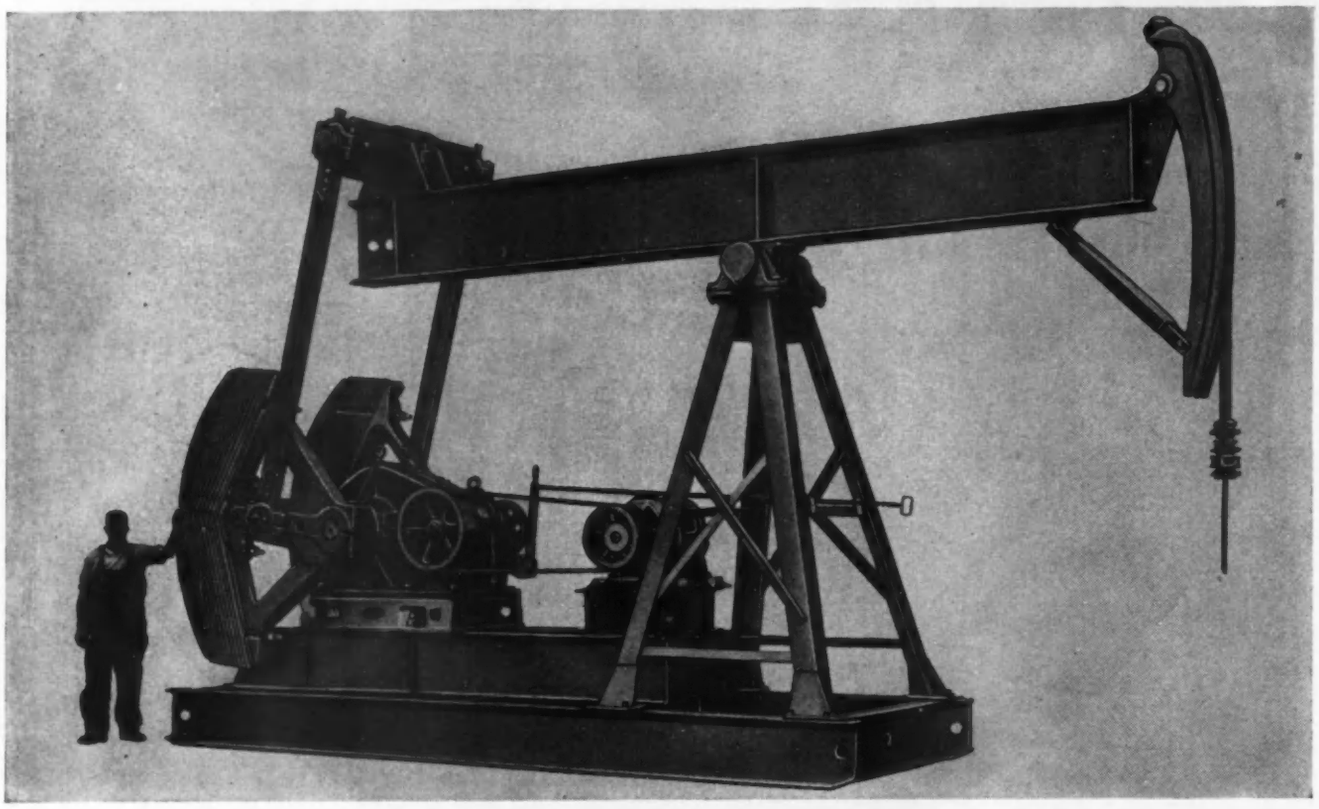

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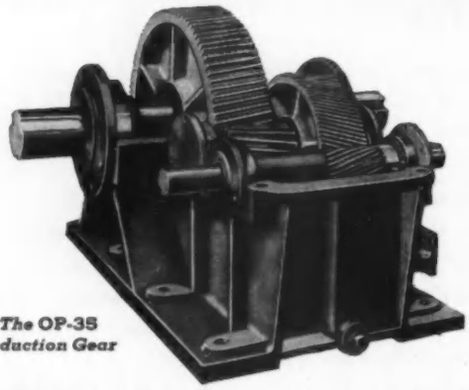

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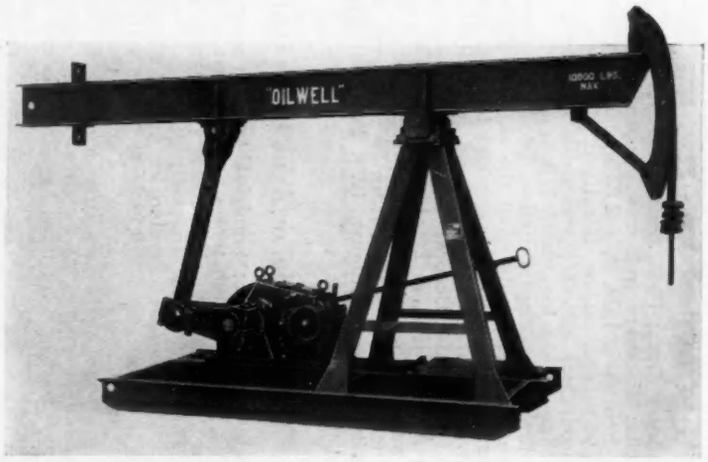

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MEXICO—State of Veracruz—*Continued*

icana de Petroleo El Aguila, S. A.'s Tecuanapa 1, completed in July, 1910, at 133.89 meters (439.16 feet) for an initial production of 5 cubic meters daily of oil with a specific gravity of 0.856. **Geology:** Salt dome with a major axis fault. Cap rock primarily dolomite. **Producing Formations:** Principally cap rock production, although some oil in small quantities is obtained from Miocene sands above the cap. The paraffin base oil varies in specific gravity from 0.852 to 0.856. **Extent of Development:** Up to the end of 1925, 3 producers and 21 failures had been drilled; none since then. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 12.6 hectares (31.13 acres). **Production History:** From discovery date through April, 1916, field yielded 51,883 tons; figures through 1933 indicate a total recovery of 71,266 barrels; in 1933 field yielded 21 cubic meters; no production in June, 1934. **Present Activity:** None. **Principal Lease Holder:** Cia. Mexicana de Petroleo El Aguila, S. A.

Tepetate (Oil)

Location: State of Veracruz; Tantima municipality; San Jose Tepetate hacienda; field is located about 110 kilometers south southeast of Tampico. **Discovery Data:** Oil seepages noted prior to drilling; discovery well was Adrian Petroleum Co.'s Sandoval 4, completed in April, 1915, at 631 meters (2069.7 feet) for an initial production of 144 cubic meters daily. Oil had a specific gravity of 0.928. **Geology:** Structure is an asymmetrical anticline regarded as a southern continuation of the same on which Chiconcillo-San Miguel is located. It has two longitudinal faults, one on each flank. **Producing Formation:** A very short distance toward the flanks, measured from the axis of the anticline, wells encounter no producing horizons; oil, having a specific gravity of 0.928, comes from El Abra limestone of the Lower Cretaceous. It has a mixed base. **Extent of Development:** Data on total completions since discovery not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 66 hectares (163.02 acres) at the end of 1933. **Production History:** No data on cumulative total production of field from discovery through end of 1932. In 1933 field was shut in. In June, 1934, field yielded daily 43.07 cubic meters from 4 producing wells. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Adrian Petroleum Company; Compania Mexicana de Petroleo El Aguila, S. A.

Tierra Amarilla (Oil)

Location: State of Veracruz; Temapache municipality; Tierra Amarilla hacienda; field is about 39 kilometers northwest of Tuxpan. **Recovery Data:** Discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Tierra Amarilla 2, completed in December, 1911, at 742.34 meters (2434.87 feet) for a daily initial production of 29 cubic meters of oil having a specific gravity of 0.927. **Geology:** Undeterminable from data in files of Universidad Nacional de Mexico. **Producing Formations:** Mixed base production from around 2434 feet. **Extent of Development:** 13 producers and 13 failures drilled from discovery time through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Estimated at 36 hectares (88.92 acres) at end of 1933; data not available on subsequent extensions. **Production History:** Data not available on total production from discovery through end of 1932; in 1933 field yielded 6711 cubic meters; in June, 1934, the field yielded daily 16.83 cubic meters from 8 producers. **Present Activity:** No activity in August, 1934. **Principal Lease Holder:** Compania Mexicana de Petroleo El Aguila, S. A.

Tierra Blanca (Oil)

Location: State of Veracruz; Temapache municipality; field of the Faja de Oro (Golden Lane); Tierra Blanca hacienda; field is about 33 kilometers west of Tuxpan. **Discovery Data:** First drilling probably due to oil seepages on Tierra Blanca hacienda; discovery well was Tuxpan Petroleum Co.'s Tierra Blanca 2, completed in February, 1922, at 642.82 meters (2108.45 feet) for a daily initial production of 9000 cubic meters. Gravity of oil of discovery well undetermined at time initial production estimate was made. **Geology:** The structure, an asymmetrical anticline with a longitudinal fault on each flank, is a continuation to the south of the Cerro Viejo anticline. **Producing Formations:** Generally lie in a narrow zone penetrated only from the crest of the anticline. Oil comes from El Abra limestone, generally compact and belonging to the Lower Cretaceous. **Extent of Development:** 52 producers and 26 failures completed from discovery time through July, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 211 hectares (521.17 acres). **Production History:** Figures not available on production from discovery time through 1933; daily average production in June, 1934, from 24 producers, was 1122.37 cubic meters. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Tuxpan Petroleum Company.

Tonola, or Agua Dulce (Oil)

Location: State of Veracruz; municipality of Puerto Mexico; North Gavilan farm; field is about 39 kilometers east northeast of Nanchital, 46 kilometers east of Puerto Mexico, and 57 kilometers northeast of Minatitlan. **Discovery Data:** No surface indications observed; geophysics were used; discovery well was Compania Mexicana de Petroleo El Aguila, S. A.'s Tonola 2, completed in April, 1928, at 570.27 meters (1870.49 feet) for an initial production of 159 cubic meters of oil with a specific gravity of 0.876. **Geology:** Elongated salt dome. **Producing Formations:** Oil comes from a series of Lower Miocene sands alternating with thin layers of shale found above the dome. The paraffin base oil varies in specific gravity from 0.856 to 0.885. **Extent of Development:** 130 producers and 7 failures completed from discovery date through July 31, 1934. **Deepest Hole:** Compania Mexicana de Petroleo El Aguila, S. S.'s Tonola III, finished in salt as a dry hole at 4658 ft. **Productive Area:** Field is not defined on all sides; productive area estimated in August 1934, at 313.94 hectares (775.43 acres). **Production History:** Cumulative total from discovery to end of 1933: 26,241,642 bbls.; total produced in first 9 months of 1934; 2,235,473 bbls.; 85 wells on production in June, 1934, were producing daily an aggregate of 1168.37 cubic meters of oil. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Cia. Mexicana de Petroleo, S. A.

Topila (Oil)

Location: State of Veracruz; Municipalities of Panuco, Tampico Alto, and Pueblo Viejo; field is located about 32 kilometers southwest of Tampico. **Discovery Data:** Discovery well was East Coast Oil Co.'s Tamboyoche 501, completed in September, 1910, at 820.52 meters (2691.3 feet) for an initial production of noncommercial quantity of oil having a specific gravity of 0.979. **Geology:** Irregular shaped dome. A terrace about 1.5 kilometers wide and 5 kilometers long defines the southeast flank of the principal dome. The surface of the upper part of the dome can be seen plainly as consisting of about 17 square kilometers. It has a few fractures. The known faults seen to radiate from the central part of the dome. **Producing Formations:** Asphalt base oil comes from limestone found in the lower part of the Upper Cretaceous and the upper part of the Lower Cretaceous. No definite horizon exists. Specific gravity of the oil varies from 0.952 to 0.979. **Extent of Development:** 140 producing wells and 148 failures completed since discovery through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated in August, 1934, at 37.7 hectares (93.1 acres). **Production History:** No figures available on production prior to 1933.

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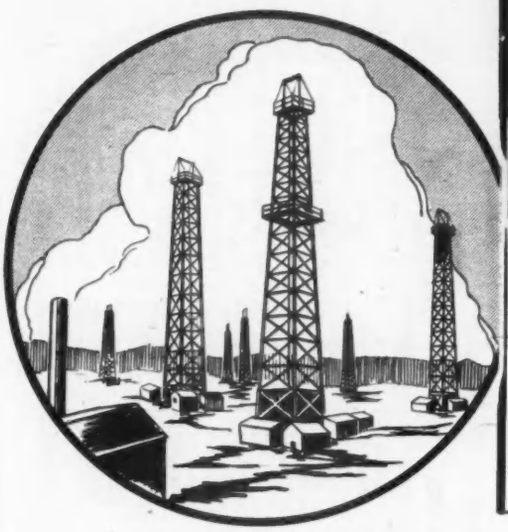

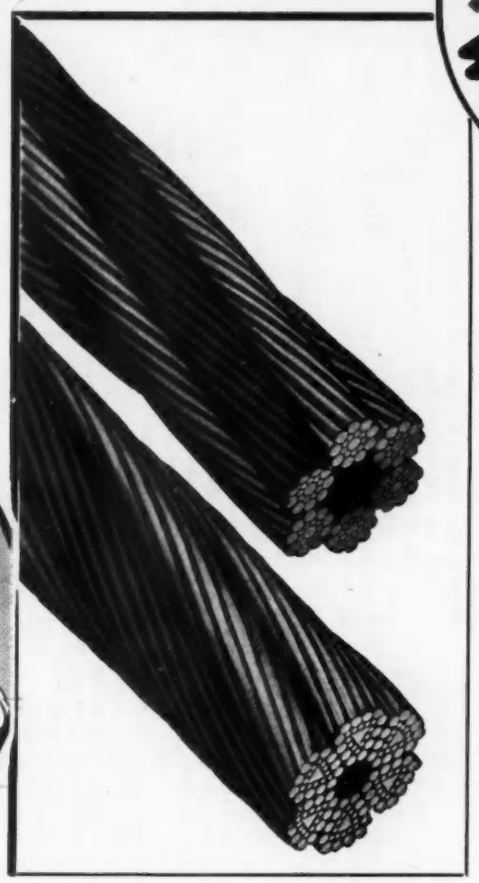

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MEXICO—State of Vera Cruz—*Continued*

In 1933 field produced 56,177 cubic meters. In June, 1934, daily average production from 48 wells was 150.63 cubic meters. **Present Activity:** One combination rotary and percussion rig running in August, 1934. **Principal Lease Holders:** Compania Mexicana de Petroleo Anahuac, S. A.; East Coast Oil Co.

Toteco-Cerro Azul (Oil)

Location: State of Veracruz; Tancoco and Tepetzintla municipalities; one of the Golden Land, or "Faja de Oro" fields; Toteco and Cerro Azul haciendas; field is about 52 kilometers northwest of Tuxpan and some 129 kilometers south southeast of Tampico. **Discovery Data:** Observation of seepages caused first drilling; discovery well was Huasteca Petroleum Company's Cerro Azul 4, completed in February, 1916, at 534 meters (1761.5 feet) for a daily initial production of 41,551 cubic meters of oil having a specific gravity of 0.9285. Note: this well is ranked as the greatest producer ever completed. Up to June 30, 1934, it had yielded 13,178,783 cubic meters of oil. **Geology:** Structure is a southern continuation of that of Zacamixtle; it is asymmetrical anticline with two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are confined to very narrow belt along the crest of the anticline. Oil comes from El Abra limestone of Lower Cretaceous and has the same specific gravity as that of the discovery well. **Extent of Development:** 70 producers and 65 failures completed from discovery time through July 31, 1934. **Deepest Hole:** No data available. **Productive Area:** Estimated in August, 1934, at 324 hectares (800.28 acres); field regarded as defined on all sides. **Production History:** No data on total cumulative production prior to 1933; in 1933 field yielded 547,842 cubic meters; daily average production in June, 1934, coming from 39 producing wells, was 1534 cubic meters. **Present Activity:** One rotary rig operating in August, 1934. **Principal Lease Holders:** Huasteca Petroleum Co. and International Petroleum Co.

MEXICO'S CRUDE PRODUCTION BY YEARS

Year	Cubic Meters	U. S. Barrels	Year	Cubic Meters	U. S. Barrels
1901	1,643	10,345	1918	10,147,587	63,828,326
1902	6,388	40,200	1919	13,843,077	87,072,954
1903	11,977	75,375	1920	24,971,173	157,068,678
1904	19,962	125,625	1921	30,746,834	193,397,587
1905	39,924	251,250	1922	28,979,087	182,278,457
1906	79,847	502,500	1923	23,781,376	149,584,856
1907	159,694	1,005,000	1924	22,206,406	139,678,294
1908	624,968	3,932,900	1925	18,364,817	115,514,700
1909	431,175	2,713,500	1926	14,375,353	90,420,973
1910	577,455	3,634,080	1927	10,194,140	64,121,142
1911	1,994,640	12,552,798	1928	7,973,070	50,150,610
1912	2,631,100	16,558,215	1929	7,104,591	44,687,879
1913	4,083,141	25,696,291	1930	6,284,563	39,529,901
1914	4,168,805	26,235,403	1931	5,252,600	33,038,853
1915	5,229,480	32,910,508	1932	5,215,500	32,805,496
1916	6,445,957	40,545,712	1933	5,405,537	34,000,830
1917	8,790,583	55,292,770	1934, First six months	2,862,612	18,005,829
			Totals	273,005,062	1,717,267,837

Zacamixtle (Oil)

Location: State of Veracruz; Tancoco municipality; one of the Golden Lane, or "Faja de Oro" fields; Zacamixtle hacienda; field is located about 62 kilometers northwest of Tuxpan. **Discovery Data:** University Nacional de Mexico says first drilling probably was caused by observation of seepages; discovery well was Tamiahua Petroleum Co.'s Zacamixtle 1, completed in October, 1920, at 742.19 meters (2434.38 feet) for a daily initial production of 10,000 cubic meters of oil having a specific gravity of 0.927. **Geology:** Structure is an asymmetrical anticline regarded as a southern continuation of that of Amatlan del Sur. It has two longitudinal faults, one on each flank. **Producing Formations:** Productive wells are limited to a very narrow zone along the crest of the anticline. Oil comes from El Abra limestone of the Lower Cretaceous and has a specific gravity of 0.927. **Extent of Development:** 51 producers and 32 failures completed from discovery date through July 31, 1934. **Deepest Hole:** Data not available. **Productive Area:** Estimated January 1, 1934, at 144 hectares (355.68 acres). Field defined on all sides. **Production History:** No data on cumulative total production from discovery through end of 1933; in June, 1934, daily average production of the field was 65.83 cubic meters of oil coming from 10 producing wells. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Tamiahua Petroleum Company.

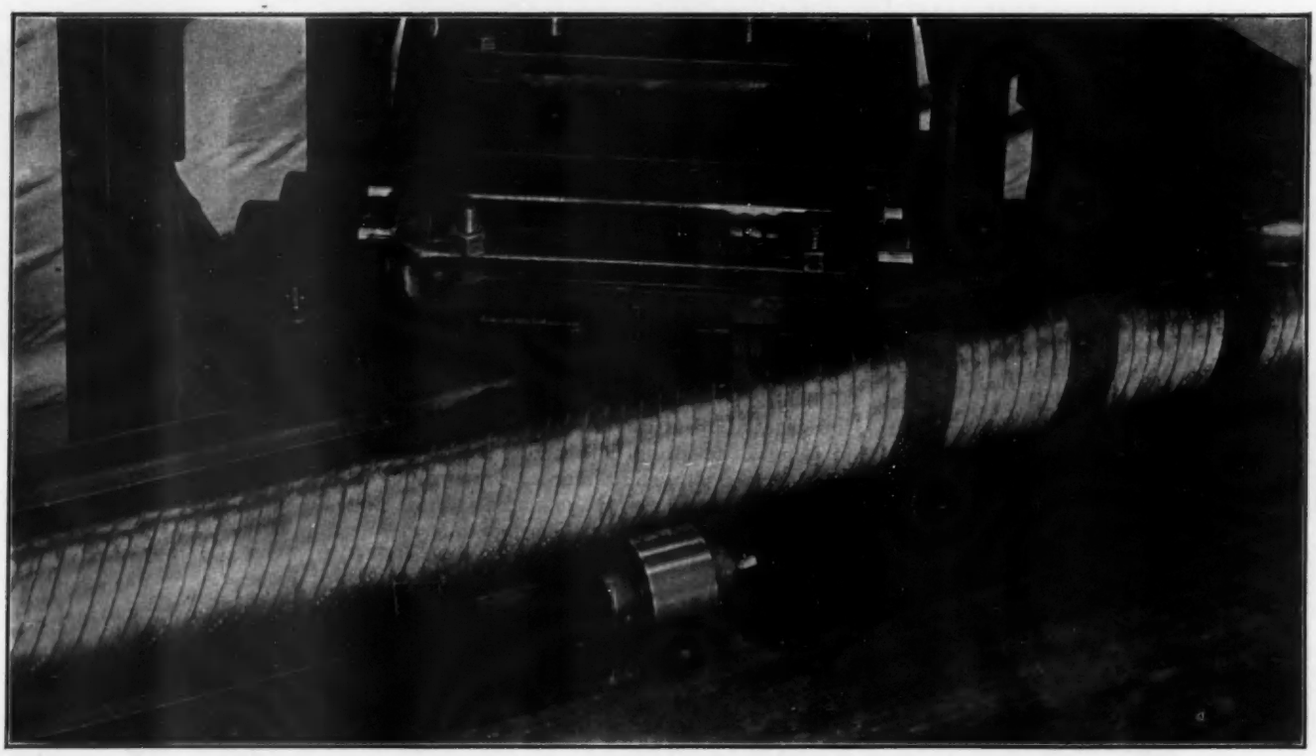
Note: In figuring productive areas of fields in Mexico, the Department of Petroleum, National Economy, assumes that each well drains a circular area with a radius of 100 meters.

For a major portion of the foregoing data on oil and gas fields of Mexico The OIL WEEKLY is indebted to the Geological Institute of the National University of Mexico and to the Department of Petroleum of the National Economy. In addition, thanks are extended to the following gentlemen whose individual effort has made presentation of the data possible: Lic. Antonio Armendariz, Senor Alfonso Barnetche, Ing. Enrique Ortiz, and Ing. Manuel Santillan.

Oil and Gas Fields of Nicaragua

No commercial production of oil or gas has been developed in Nicaragua, Central America. During 1934 Compania Petrolera de Nicaragua, S. A., drilled a wildcat on the western and gentler-flank of a long, narrow anticlinal fold, several miles in length, which roughly parallels the Pacific Coast of Nicaragua. The well was drilled with a cable tool outfit and reached a depth of 3940 feet before being abandoned. No signs of either oil or gas were encountered. The well penetrated a thick section of very calcareous, rather fractured, marine shales, interbedded with occasional very prolific water-sands.

The formation penetrated is thought to be Upper Eocene in age, according to W. Ernest Aitken, manager and geologist. The age determination was based on micro-fossils found in what is thought to be the same formation several miles to the south. Correlation of beds is difficult in this territory, however, for the physical characteristics of the formation are very uniform for considerable thicknesses, and fossils of any kind are very scarce. Only one foram was found during drilling operations, despite the fact that samples were examined every 10 feet.



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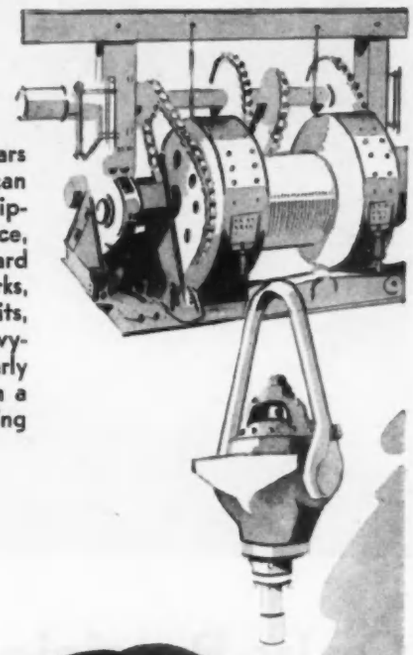

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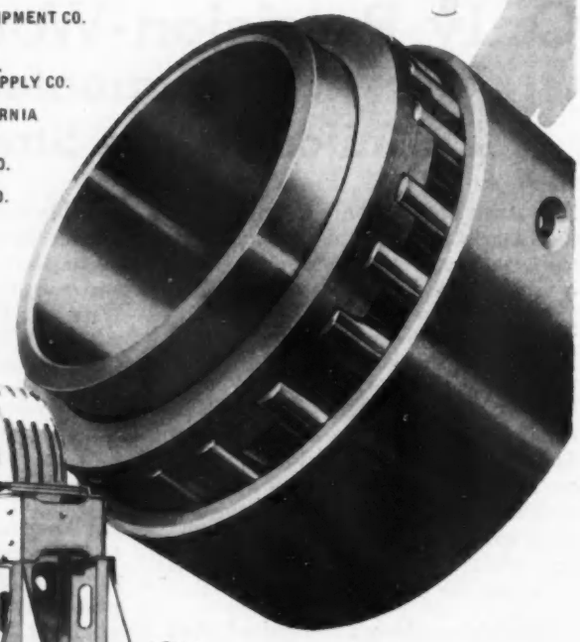

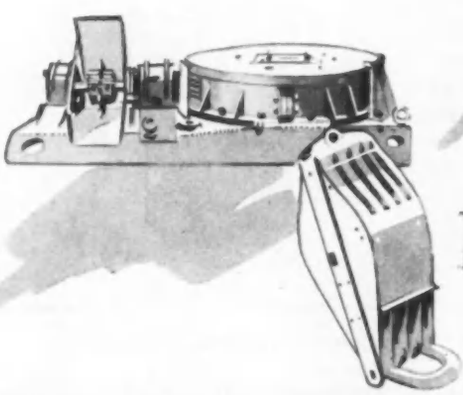

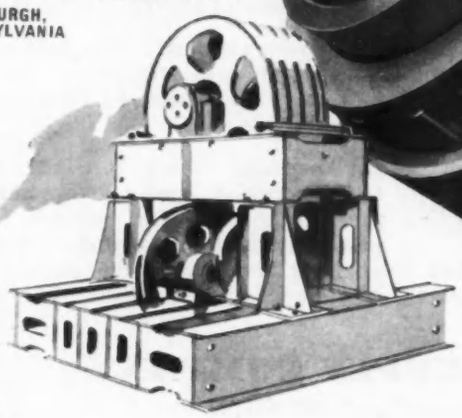

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WORLD OIL SURVEY

South America

View of line drilling at Comodoro Rivadavia, Argentina

Oil and Gas Fields of Argentina

Comodoro Rivadavia (Oil)

Location: National Territory of Chubut; near Gulf of St. George; near Atlantic ocean; Comodoro Rivadavia district comprised of three distinct areas; see below "Comodoro Rivadavia-Astra Region", "Comodoro Rivadavia-Colonia Escalante", "Comodoro Rivadavia-Seacoast". **Extent of Development:** Field statistics are totaled by companies in the Comodoro Rivadavia district and not by fields. The following data represent totals by companies in the district: Yacimientos Petroliferos Fiscales, since discovery of the district, has completed 1337 oil wells, 19 gas wells, and 145 failures; Ferrocarrilera Compania has completed 336 oil wells, 5 gas wells and 11 failures; Industrial y Comercial de Petroleo Compania has completed 82 oil wells, 7 gas wells and 35 failures. **Production History:** Yacimientos Petroliferos Fiscales' total in 3 fields up to end of 1933: 9,469,739 cubic meters; Y. P. F.'s total for first 6 months of 1934: 358,964 cubic meters; Ferrocarrilero Co.'s total to end of 1933: 1,827,104 cubic meters; Ferrocarrilera Co.'s total for first 6 months of 1934: 107,731 cubic meters; Industrial y Comercial de Petroleo's total to end of 1933: 746,075 cubic meters; Industrial y Comercial de Petroleo's total for first 6 months of 1934: 7,043 cubic meters. Total for 3 companies to end of 1933: 12,042,918 cubic meters; total for 3 companies for first 6 months of 1934: 473,368 cubic meters. Daily average production of district (June 30, 1934), including production of above 3 companies: 2,630 cubic meters. Wells on production in district June 30, 1934: 1622. Gravity of oil: 0.915 at 15 deg. C.

Comodoro Rivadavia-Astra Region (Oil)

Location: National Territory of Chubut; Colonia Escalante; 7 kilometers west of the Seacoast fields. **Discovery Data:** First drilling as a result of surface geology; discovery well was Astra Compania Argentina de Petroleo, S. A.'s A-1, completed in 1912 at 622.26 meters (2041 feet) for a small amount of oil with a gravity of 0.915 at 15 deg. C., and 20 atm. gas pressure. **Geology:** Anticline with faulting as a major feature. **Producing Formations:** Oil comes from a shaly sandstone of Upper Cretaceous found at from 500 to 550 meters below sea level. The oil, which has an asphalt base, continues to average 0.915 gravity at 15 deg. C. **Extent of Development:** From discovery date through June 30, 1934, a total of 440 wells had been completed in the field. Of these, 345 were oil wells, 9 were gas wells, and 86 were failures. These figures and the following below correspond to wells of Astra only. Yacimientos Petroliferos Fiscales (the government) is drilling around property of the above company. **Deepest Hole:** Astra Compania Argentina de Petroleo's No. 109, completed in green sandstone as a dry hole in November, 1929, at a depth of 1140.7 meters. **Productive Area:** Estimated at 800 hectares in August, 1934. Field is not defined on all sides. **Production History:** Total production to end of 1933 was 1,604,053 cubic meters; production during first 6 months of 1934 was 95,514 cubic meters; daily average production as of June 30, 1934, was 535 cubic meters, coming from 222 wells. **Present Activity:** 5 rotary and percussion rigs running as of August, 1934. **Principal Lease Holders:** Argentine Government Oil Fields; Astra Compania Argentina de Petroleo, S. A.

Comodoro Rivadavia-Colonia Escalante (Oil)

Location: National Territory of Chubut; Colonia Escalante district; 20 kilometers northwest from Comodoro Rivadavia city. **Discovery Data:** Surface geology; discovery well was Diadema Argentina S. A. de Petroleo's No. A-1, completed in 1926 at 858.7 meters for an initial daily production of 12 cubic meters. Gravity of oil: 0.89 at 15 deg. C. **Geology:** Typical faults field; anticline with faulting as important feature. **Producing Formations:** Oil comes from shaly sandstone of Upper Cretaceous found at from 500 to 550 meters below sea level. It has an asphalt base and a gravity of 0.89 at 15 deg. C. (about 20 degrees A. P. I.) **Extent of Development:** From discovery date through June 13, 1934, a total of 69 completions have been counted; of these, 54 were oil wells, 6 were gas wells, and 9 were failures. **Deepest Hole:** Diadema Argentina's E-1, completed February 7, 1928, at 1384.45 meters for an initial production of 8 cubic meters daily. Well stopped drilling in grey sandstone and clay. **Productive Area:** Estimated in August, 1934, at 200 hectares. The field is not defined on all sides. **Production History:** Total cumulative oil produced through end of 1933: 1,192,709 cubic meters; total produced during first 6 months of 1934: 251,073 cubic meters; daily average production of field as of June 30, 1934: 1395 cubic meters from 54 producing wells. **Present Activity:** Diadema Argentina operating 2 rotary rigs as of August, 1934. **Principal Lease Holders:** Yacimientos Petroliferos Fiscales; Diadema Argentina S. A. de Petroleo.

Comodoro Rivadavia-Seacoast (Oil)

Location: National Territory of Chubut; Comodoro Rivadavia district; 7 kilometers northwest from field of Astra. **Discovery Data:** Oil found when drilling for water; discovery well was Direccion de Minas y Geologia's (Government's) No. 2, completed in 1907 at 539.18 meters for an initial production of 10 cubic meters of oil having a gravity of 0.915 at 15 deg. C. **Geology:** Typical faults field; anticline with faulting as important feature. **Producing Formations:** Oil comes from shaly sandstone and blue clays (Continental?) of Upper Cretaceous. It has an asphalt base and is found at from 500 to 550 meters below sea level. Gravity averages 0.915 at 15 deg. C. **Extent of Development:** Data not available; see first Comodoro Rivadavia listing. **Deepest Hole:** Ferrocarrilera de Petroleo's No. 187, completed at 1819.7 meters as a dry hole September 1, 1931. Bit stopped in volcanic lava and grey tuff. **Productive Area:** Estimated at about 4000 hectares, or nearly 10,000 acres. Field is defined on all sides. **Production History:** Not available; see first listing under Comodoro Rivadavia. **Present Activity:** 10 rotary and percussion rigs running in August, 1934. **Principal Lease Holders:** Direccion General de Yacimientos Petroliferos Fiscales; Ferrocarrilera de Petroleo; Industrial y Comercial de Petroleo.

District of Oran (Oil)

Location: Province of Salta, District of Oràn, 20 to 50 kilometers from city of Oràn. **Discovery Data:** Oil seepages, paraffin dirt, and faults caused first drilling. Discovery well drilled in 1911 in the mina "República Argentina". Total depth: 60 meters. Little production. Other data unknown. **Geology:** Anticline with steep folding. **Producing Formations:** Grey clays and limestone, Permian-Triassic to Permian-Carboniferous, found at 400-1200 meters. Gravity of oil is 0.790 at 15° C.. Paraffin base. **Extent of Development:** Completions from discovery through June 30, 1934. Standard Oil Co.: 62 oil wells; Argentine Government Oil Fields: 59 oil wells; Standard Oil Co.: 24 failures; Argentine Government Oil Fields: 14 failures. No gas wells completed. **Deepest Hole:** Cerro Tartagal 2 of Standard Oil Company of Argentina; depth: 1,472.18 meters; lease: Cateo 622-C; completion date: June 12, 1929; initial production: 3 liters per hour. Now abandoned. **Productive Area:** 500 hectares (1250 acres) as of June 30, 1934. The field is not yet defined in all sides. **Production History:** Total produced to end of 1933: 662,944 cubic meters; total produced during first 6 months of 1934: 169,285

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ARGENTINA—Oran District—*Continued*

cubic meters; daily average production of field as of June 30, 1934: 834 cubic meters, coming from 121 oil wells, when 59 government owned wells were producing 63 cubic meters per day, and 62 wells of Standard Oil Company of Argentina were producing 771 cubic meters per day. Gravity of oil averages 0.79 at 15 deg. C. Government's share of production to end of 1933 was 101,488 cubic meters; Standard's share was 561,456 cubic meters; Government's recovery during first 6 months of 1934 was 11,209 cubic meters; Standard's was 158,076 cubic meters. **Present Activity:** Number of rigs running in field: 20—all cable tools. **Principal Lease Holders:** Direccion General de Yacimientos Petroliferos Fiscales (Argentine Government Oil Fields). Standard Oil Company of Argentina.

Jujuy (Oil)

Location: Province of Jujuy. **Discovery Data:** Yacimientos Petroliferos Fiscales (Argentine Government Oil Company) discovered field in 1931. **Geology:** Data not available. **Producing Formations:** Data not available. **Extent of Development:** Figures of number of drillings not obtainable. Operations in this field stopped temporarily in 1933. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** Production figure not obtainable. This field shut in temporarily in 1933. **Present Activity:** None as of August, 1934. **Principal Lease Holders:** Yacimientos Petroliferos Fiscales.

Lomitos (Oil)

Location: Province of Salta; included in "Salta," which see.

Mendoza—Sosneado (Oil)

Location: Province of Mendoza. **Discovery Data:** 1932, Yacimientos Petroliferos Fiscales (Argentine Government Oil Company). **Extent of Development:** Number of wells drilled and output not obtainable. Gas is not used for commercial purposes in Argentina. **Production History:** Cumulative total oil through December 31, 1933—23,186 cubic meters. Cumulative total for first six months of 1934—4298 cubic meters; daily average production as of June 30, 1934—23 cubic meters. **Principal Lease Holders:** Yacimientos Petroliferos Fiscales.

Nequen (Oil)

Location: National territory of Nequen; included in Plaza Huincul, which see.

Plaza Huincul (Oil and Gas)

Location: National Territory of Neuquen, District of Confluencia, West Central Argentina, 100 kilometers west of Neuquen City. **Discovery Data:** Oil seepages and surface geology caused first drilling. Discovery well No. 1 drilled by Direccion de Minas y Geologia in 1922. Total depth, 1060 meters. Initial production, 1000 liters in 24 hours. Gravity of oil, 0.854 at 15° C. **Geology:** Accumulation due to monoclinal structure and unconformity. **Producing Formations:** Dark clays with fine sandstone of Jurasic age, found at 800-1100 meters. Gravity of oil is 0.854 at 15 deg. C. (32° A.P.I.). It has a paraffin base. **Extent of Development:** 307 oil wells, 12 gas wells, and 54 failures completed from discovery through June 30, 1934. **Deepest Hole:** C-1, drilled by Direccion General de Yacimientos Petroliferos Fiscales. Completed December 15, 1932. Abandoned March, 1933, dry hole. Location, Arroyo Covunco. Formation in which well stopped drilling, hard grey sandstone. **Productive Area:** 2556 hectares (approximately 6400 acres) as of August, 1934. The field is not defined on all sides yet. There is some ex-

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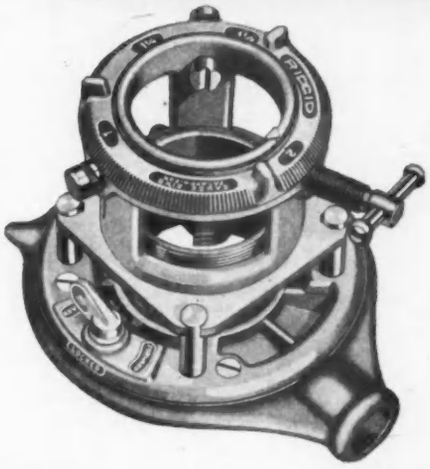

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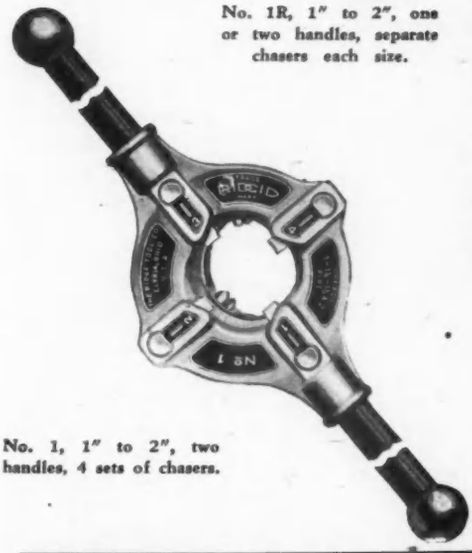

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ARGENTINA—Plaza Huincul—*Continued*

ploration work carried out. **Production History:** 1,436,046 cubic meters cumulative total to end of 1933; 89,426 cubic meters produced in first 6 months of 1934; 474 cubic meters daily yield as of June 30, 1934, when 287 wells were on production. Gravity, 0.854 at 15°C. **Present Activity:** 18 cable tool rigs running in August, 1934. **Principal Lease Holders:** Direccion General de Yacimientos Petroliferos Fiscales (Argentine Government Oil Fields), Standard Oil Company of Argentina, Astra, Compania Argentina de Petroleo S. A.

Ramos (Oil)

Location: Province of Salta; included in "Salta" fields, which see; drilling was done here by Standard Oil Co. Production not significant.

Salta (Oil and Gas)

NOTE: Includes Lomitos, Ramos, Tablillas, San Pedro, and Tartagal fields. **Location:** Proyince of Salta. **Discovery Data:** Discovered in 1925 by Standard Oil Company of Argentina and Yacimientos Petroliferos Fiscales (Argentine Government Oil Company). **Geology:** Data not available. **Producing Formations:** Yield very light oil. Other data not available. **Extent of Development:** Standard Oil Company of Argentina has drilled 123 wells of which 89 were producers. Number of wells drilled by the Y. P. F. and output not obtainable. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** Total cumulative for field through December 31, 1933—662,944 cubic meters; total cumulative for first 6 months of 1934—169,285 cubic meters; daily average production of fields of June 30, 1934—940 cubic meters. **Present Activity:** Drilling being carried on by Standard Oil Co. of Argentina and by Y. P. F. **Principal Lease Holders:** Standard Oil Company of Argentina, and Yacimientos Petroliferos Fiscales.

Sosneada (Oil)

Location: Province of Mendoza; see Mendoza-Sosneada.

Miscellaneous Fields (Oil)

Include: Tablillas, in Salta, where Y. P. F. is producing; Porcelana, where Standard Oil Company of Argentina has drilled; Vado Hondo field in Salta, where government's efforts to develop production have not been commercially successful; San Pedro, a small field in Province of Salta where the Standard is producing; and Tartagal, also in Salta, where the Standard has done some drilling.

For the foregoing data on fields of the Argentine Republic acknowledgment is made and thanks given to A. M. Warren of Buenos Aires and Tomas Ezcurra, director general of the department of mines and petroleum of the Argentine government.

Oil and Gas Fields of Bolivia

Bermejo (Oil)

Location: Extreme south-central part of the State; Lote No. 1; Department of Tarija, on the Bermejo river; bordering the Republic of Argentine; 45 kilometers northwest of the city of Oran and 65 kilometers northwest of the city of Embarcacion, Argentine. **Discovery Data:** Oil seeps and sulphur water indications; first production Standard Oil Company of Bolivia's Bermejo No. 2; completed in 1927; 300 barrels initial production; 635.5 meters (2084 feet) total depth; gravity of oil 25.5° Be. **Geology:** Elongated dome. **Producing Formations:** 12 oil and 4 gas, showings encountered; main production from sand at 2084 feet; probably Cretaceous or older. **Extent of Development:** Up to July 1, 1934: 8 tests drilled; 4 oil producers; 4 holes abandoned on account of drilling trouble; one hole drilled with rotary outfit. **Deepest Hole:** Standard Oil Co. of Bolivia's Bermejo No. 9; depth 3780 ft., completed May, 1932, dry. **Productive Area:** Approximately 624 hectares (1541 acres); field is not defined to the northeast yet. (June 30, 1934). **Production History:** The field produced at the close of 1931 about 1614 barrels with the production data of two wells still missing; all the wells are shut in on account of lack of pipe line facilities; the wells are yielding from 25.5 to 29° Be. gravity oil. **Present Activity:** Field not under development as of June 30, 1934; all the wells but one were drilled with standard cable tools. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Buena Vista (Oil)

Location: South-central part of the State; Concession "Ayacucho"; Province of Azero; Department of Chuquisaca; 207 kilometers northeast of the frontier town of Yacuiba (bordering Argentine); 30 kilometers southeast of the town of Cuevo, on a bee line; 40 kilometers northeast of the Camatindi oil field. **Discovery Data:** Oil seeps and surface indications caused first interest. Discovery well was Standard Oil Company of Bolivia's Buena Vista 1, completed July, 1926, at 964.93 meters (3165 feet) for an initial production estimated at 250 barrels. **Geology:** Pronounced structure, elongated dome. **Producing Formations:** None commercially; a few oil and gas showings encountered; main pay probably will be Cretaceous. **Extent of Development:** Through June 30, 1934: one test drilled only; oil and gas producer. **Deepest Hole:** Standard Oil Co. of Bolivia's Buena Vista 1; depth 964.93 meters (3165 feet); completed in July, 1926; production estimated at 250-500 barrels. **Productive Area:** Estimated by government in June, 1934, at approximately 600 hectares (1482 acres); on pronounced fold only. **Production History:** There has been only one well drilled in this district; it was started in August, 1924, and finished in July, 1926, with a total depth of 3165 feet. The oil shows were of high grade quality and about 44° Be. gravity. **Present Activity:** None as of June, 1934. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Camatindi (Oil)

Location: South-central part of the State; Lote No. 8; Province of Azero and Gran Chaco; Departments of Chuquisaca and Tarija; 40 kilometers northwest of the town of Villa Montes; 80 kilometers (50 miles) northeast of the Sanandita oil fields. **Discovery Data:** Surface indications caused first interest. Discovery well was Standard Oil Co. of Bolivia's No. 1, completed in May, 1929, at 4110 feet for 195 barrels initial production. **Geology:** Pronounced structure, anticlinal fold with doming. **Producing Formations:** Main production from sands at 4108, 4803 and 2344 feet; probably Cretaceous. **Extent of Development:** Up to July 1, 1934: 3 tests drilled; all of them oil producers. **Deepest Hole:** Standard Oil Com-

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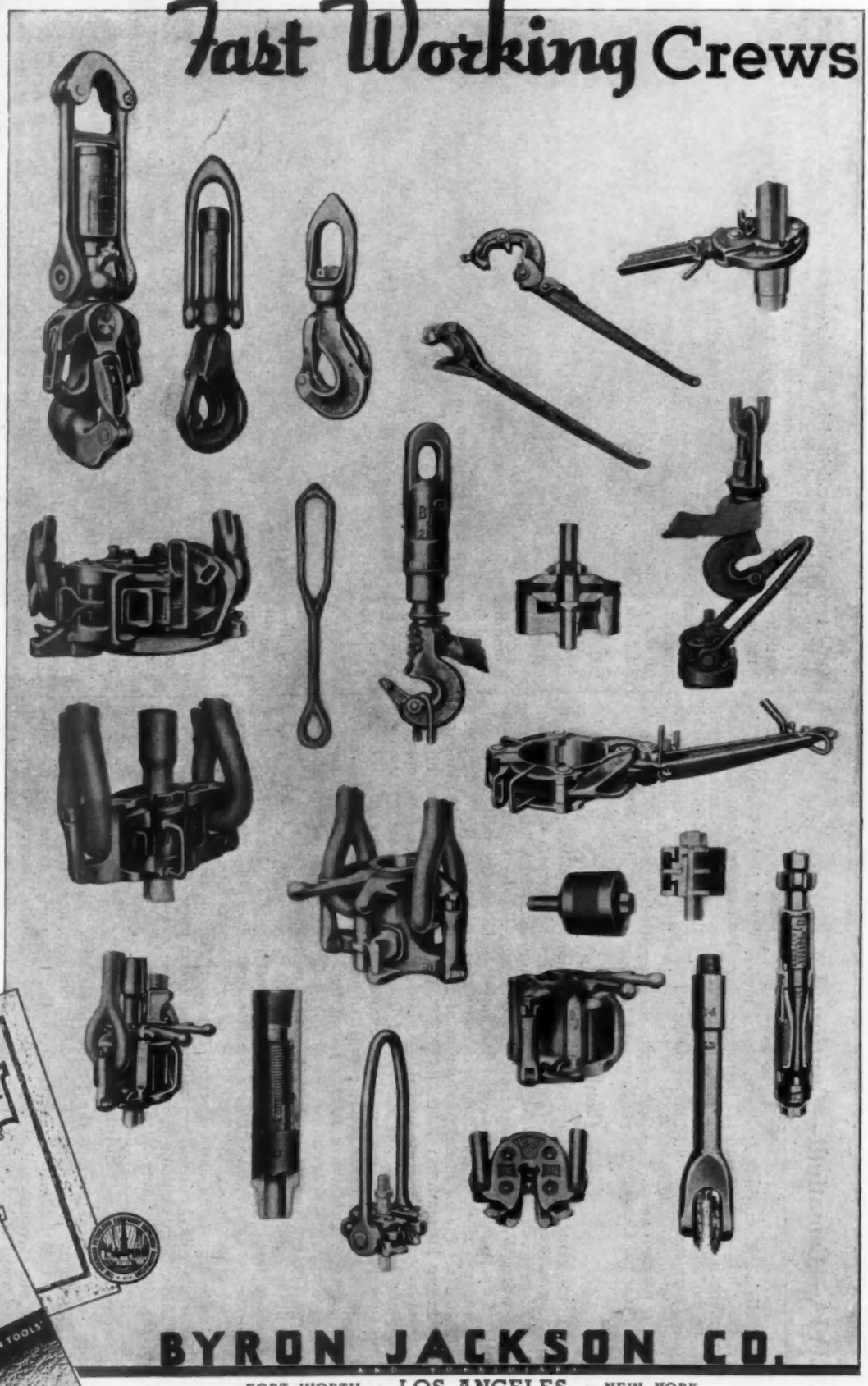

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BOLIVIA—Camatindi—*Continued*

pany of Bolivia's Camatindi 2; depth 1464.6 meters (4803 feet); completed in January, 1930; initial production 113 barrels per day. **Productive Area:** Estimated by government in June, 1934, at approximately 576 hectares (1423 acres); field not defined on all sides. **Production History:** The field produced in 1931 with three wells completed about 381 barrels daily; all the wells shut in as of June 30, 1934. Wells yield from 43.4° Be. to 44.7° Be. gravity oil. **Present Activity:** None as of July 1, 1934, on account of lack of pipe line facilities. Standard cable toools are used. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Camiri (Oil)

Location: South-central part of the State; Concession "Lagunillas"; Province of Cordillera; Department of Santa Cruz; 50 kilometers northwest of the town of Cuevo; 50 kilometers southeast of the town of Lagunillas; 70 kilometers northwest of the Buena Vista well; bordering and offsetting the River Parapeti. **Discovery Data:** Surface indications caused first interest. Discovery well was Standard Oil Company of Bolivia's Camiri 1, completed in August, 1927, at 1005.8 meters, (3300 feet) for an initial production of 370 barrels. **Geology:** Elongated dome. **Producing Formations:** 7 oil and 5 gas sands encountered; main oil production from around 3000 feet; probably Cretaceous. **Extent of Development:** 4 tests drilled; 1 abandoned on account of drilling trouble (caving); two oil wells, one gas producer. **Deepest Hole:** Standard Oil Company of Bolivia's Camiri 1; 1005.8 meters, (3300 feet); completed in August, 1927; initial production 370 barrels. **Productive Area:** Estimated by government, June 30, 1934, at approximately 400 hectares (988 acres); field is not defined yet. **Production History:** The field produced in 1931, with 3 wells completed, 740 barrels of oil and 5 million cubic feet of gas; the latter from a gas sand encountered at a depth of 473 meters (1551 feet); the wells are yielding 56.7° Be. and 54.3° Be. gravity oil, respectively. Since 1931 a small refinery (topping plant) has been constructed which produces 5000-8000 litres of aviation gasoline and 18,000-20,000 litres of standard gasoline daily. **Present Activity:** The oil from the two wells, about 200 barrels a day, is used for refining purposes; up to the present time no more wells have been drilled. Standard cable tools are used. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Saipuru (Prospect)

Location: South-central part of the State; Concession "Parapeti"; Province of Cordillera; Department of Santa Cruz; 25 kilometers northwest of the town of Charagua and 45 kilometers northeast of the town of Lagunillas; 60 kilometers, (37.5 miles) northeast of the oil fields of Camiri. **Discovery Data:** Oil and gas seeps and sulphur water indications. Discovery well was Standard Oil Company of Bolivia's Saipuru 1, completed in January, 1924, to produce 60-70 barrels initially from a sand at 500 feet. Well later drilled deeper. **Geology:** Structural dome. **Producing Formations:** None commercially; 3 oil and 3 gas showings encountered; main pay at 500 feet; probably Tertiary (migratory oil?) **Extent of Development:** 2 tests drilled; one abandoned on account of drilling trouble (two strings of tools stuck in the hole); the other was a producer temporarily. **Deepest Hole:** Standard Oil Company of Bolivia's Saipuru 1; depth 682.7 meters (2240 feet), completed in January, 1924; production of the 500 ft. sand (60-70 bbls.), cased off; well abandoned. **Productive Area:** Local structure area estimated at 741 acres. This is not the productive area. **Production History:** Only two wells were drilled in this district; both of which were abandoned on drilling trouble. In well No. 1, a gas sand was encountered at a depth of 495 feet which produced 5 million cubic feet of gas; gravity of oil 41° Be. **Present Activity:** None in July, 1934. Cable tools are used. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Sanandita (Oil)

Location: South-central part of the State; Lote No. 7; Department of Tarija; situated 45 kilometers northeast of the town of Yacuiba and 50 kilometers north of the Argentine frontier; 140 kilometers, (87 miles) northeast of the Bermejo oil fields. **Discovery Data:** Broken surface and oil seeps; first production, Standard Oil Company of Bolivia's Sanandita 1; completed in 1926; initial production, 200 barrels; depth 615 meters (2017 feet); gravity of oil 45.5° Be. **Geology:** Anticline. **Producing Formations:** 11 oil and 9 gas showings encountered; main oil production from sand at 2000 feet; probably Cretaceous or older. **Extent of Development:** Up to July 1, 1934, 5 tests drilled; 3 oil producers; two abandoned on account of drilling trouble. **Deepest Hole:** Standard Oil Company of Bolivia's Sanandita 4; depth 1338.1 meters, (4389 feet); completed in April, 1930; abandoned on account of losing tools in hole and a fruitless fishing job. **Productive Area:** Estimated by government July 1, 1934, at approximately 800 hectares (1976 acres); field is not defined. **Production History:** Gov't claims the field produced at the close of 1927 about 1000 barrels daily; the wells were shut in till a small refinery (topping plant) was constructed; daily average production in January, 1935, about 200 bbls. of 40° Be. gravity oil. **Present Activity:** None in July, 1934. Cable tools are used. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Tatarenda (Prospect)

Location: South-central part of the State; Concession "Tacuru"; Province of Cordillera; Department of Santa Cruz; 50 kilometers northeast of the town of Lagunillas; 70 kilometers northwest of the town of Charagua; 100 kilometers, (62.5 miles) north of the oil fields of Camiri. **Discovery Data:** Oil seeps and surface indication caused first interest. Discovery well was Standard Oil Company of Bolivia's Tatarenda 1, completed in June, 1928, at 3220 feet. It merely had a showing of gas. **Geology:** Pronounced structure, anticline. **Producing Formations:** 6 gas sands encountered; probably Cretaceous. **Extent of Development:** Up to July 1, 1934, one test drilled; gas sands cased off. **Deepest Hole:** Standard Oil Company of Bolivia's Tatarenda 1; depth 3220 feet; completed in June, 1928. **Productive Area:** Structure covers several thousand of acres; productive area not determined as of June 30, 1934 **Production History:** There has been only one well drilled in this district; it was started in December, 1926, and abandoned in June, 1928; 5 3/16-inch casing frozen at 3098 feet; hole abandoned; to be drilled deeper with core drill after June 30, 1934. **Present Activity:** None in June, 1934. **Principal Lease Holders:** Standard Oil Company of Bolivia.

Miscellaneous Prospects

Prospects in Bolivia which have not developed any commercial production (as of February 1, 1935), include: San Jose, Tuichi, Secure, Chapare, Cochamba (Caluyo), Espejos. Two dry holes have been drilled on the Machareti prospect, and one dry hole each drilled on the prospects of Caigua and San Telmo.

For data presented in this volume on fields of Bolivia, South America, The OIL WEEKLY is indebted to Dr. Jorge Munoz-Reyes, director general of the department of mines and petroleum of the Bolivian government.

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Oil and Gas Fields of Chile

Tres Puentes (Prospect)

Location: Magallanes territory and department, 8 kilometers northwest of the city of Magallanes, formerly known as Punta Arenas. **Discovery Data:** Small oil seepage and several gas seeps near the crest of the anticline. Government's well R 2 completed June, 1931, total depth 1180 meters oil coming from sandstone between 400-600 meters, specific gravity 0.885; initial flow 2 tons. **Geology:** Relatively simple anticline with local domes. **Producing Formations:** Tertiary, probably Oligocene, hard sandstone strata between 400-600 meters paraffin oil, 0.885 specific gravity. **Extent of Development:** Up to June 30, 1934: Two wells; the discovery well and a dry hole. **Deepest Hole:** Government's well R 2; depth 1180 meters; completed in June, 1931; stopped in Upper Cretaceous and produced 2 tons initially; well was located on the crest of the anticline. **Productive Area:** None as of June 30, 1934. **Production History:** No data available. **Present Activity:** None in August, 1934. **Principle Lease Holders:** Government of the Republic of Chile.

Thanks are extended to Dr. Roberto Muller, director of the Chilean department of mines and petroleum, for furnishing The OIL WEEKLY the foregoing data on Tres Puentes prospect.

Oil and Gas Fields of Colombia

Barrancabermeja (Oil)

Location: Department of Santander, lower part of Magdalena Valley; see De Mares Concession.

DeMares Concesion (Oil)

Note: Includes Barrancabermeja and El Centro

Location: Departmento de Santander; municipality of Barrancabermeja; approximately 20 kilometers southwest from Barrancabermeja and 78 kilometers from Bucaramanga (capitol of the department). This field is located in what is known as the east side of the Lower Magdalena Valley. No other producing fields nearby. Plenty of prospecting at present in government lands; several concessions being granted to bona-fide companies according to Law 37 of 1931. (Pet. Law) Pipeline (Andian National Corp. Ltd.) from El Centro to Mamonal, distance 537 kilometers. Crude exported from Mamonal (Cartagena). **Discovery Data:** Long ago the area was known to have oil and gas seepages, used by the Spaniards during the conquest and they gave the place the name of "Las Infantas" in memory of two Spanish Princesses. All the surface indications and the use by hunters of the oil and asphalt, shown by Jose J. Bohorquez to Roberto De Mares, induced the latter to obtain from the government a concession that later was transferred to the Tropical Oil Company. The wells were drilled by the Tropical at Infantas, and the discovery well was 2A, that had commercial production at 1500 feet, April 20, 1918. Production estimated 1000 barrels. 27° A. P. I. **Geology:** Anticlines with faulting as important feature. Several anticlines in the concession; the most important ones are, La Cira and Infantas; other anticlines known as La Colorada, La Puerta, La Mugrosa, etc. **Producing Formations:** Gas and soft oil sands; belonging to Tertiary, (probably of the Lower Miocene). At La Cira the average depth of the production horizon is 1950 feet; at Infantas, three producing sands, at 1540 feet, 1800 feet and 2300 feet; oil of 27° gravity produced by the first two sands, and of 30° gravity from the deepest one; sands known as "A," "B" and "C" zones. Mixed base crude, with 24% gasoline content. **Extent of Development:** Wells drilled to 30th of June, 1934: 700; no gas wells. Failures on the whole concession up to June, 1934: 29. **Deepest Hole:** "La Llana 6," drilled by the Tropical Oil Company at the structure of "La Colorada"; abandoned at 6162 feet February 11, 1932. No commercial production. **Productive Area:** Both producing structures cover 4500 hectares, more or less. No gas produced alone; gas produced is casinghead. Practically all the structures have been proved; "La Cira" structure has not been drilled to the northeast. "Infantas" structure has been drilled and defined in all sides; "La Cira" structure has been drilled about one half. **Production History:** Cumulative production through 1933: 132,149,720 barrels; from January 1 to June 30, 1934, 7,537,190 barrels: daily production as of June 30, 1934, 51,466 barrels; average gravity of the crude, 27° A. P. I.; number of wells on production as of June 30, 1934: 418. **Present Activity:** At present the Tropical Oil Company has 8 rotary rigs in continuous operation; all the rigs are operated by Colombian personnel. **Principal Lease Holders:** Tropical Oil Company.

El Centro (Oil)

Location: Department of Santander; east side of Lower Magdalena Valley; see "De Mares Concession." **Geology:** Anticline. **Producing Formations:** See "De Mares Concession."

Infantas (Oil)

Location: Department of Santander, in Magdalena Valley, 15 miles southeast of Barrancabermeja; distance from Caribbean coast 350 miles. **Discovery Data:** Abundant oil seepages and strongly developed uplift. First production: Tropical Oil Company Well 2, April 29, 1918; depth 1580 feet; initial production, 150 barrels; 25 gravity. See also "De Mares Concession." **Geology:** Large anticlinal fold broken near crest by thrust fault of 2000 foot throw. **Producing Formations:** Two producing horizons. Uppermost of these is of relatively small importance and consists of a zone of Oligocene (?) sandstones, interbedded with shales, usually encountered above 1000 feet. Oil is of asphaltic base and has a gravity of 26°. The lower and important horizon is about 1100 feet below the upper one and consists of Eocene (or Oligocene?) sandstones interbedded with shales. Oil is of asphaltic base and has gravity of 26-30°. Government lists 3 main sands:

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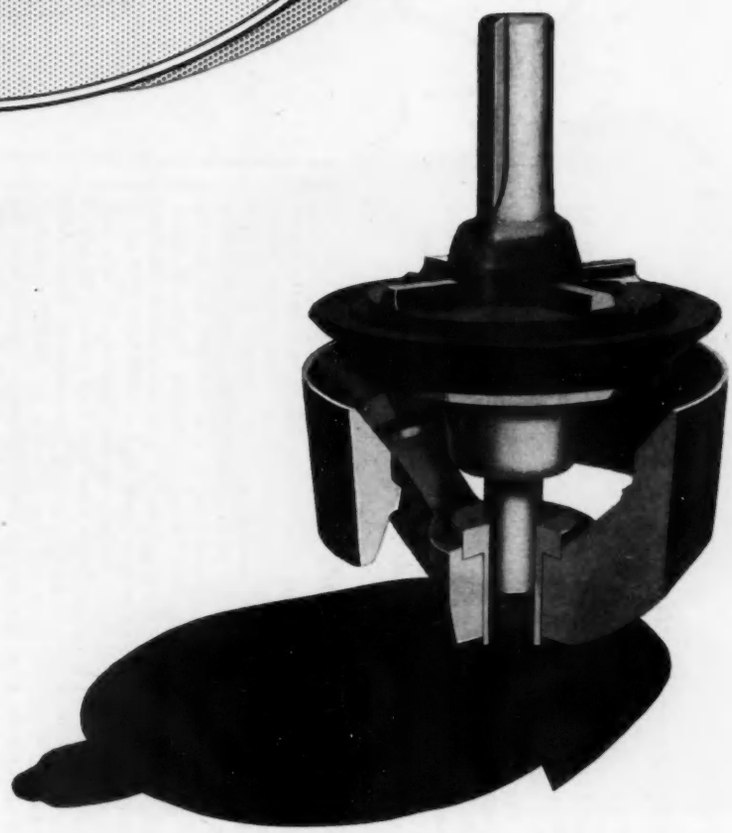

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COLOMBIA—Infantas—*Continued*

1540 feet, 1800 feet, and 2300 feet, and classes the oil as mixed base. **Extent of Development:** 463 wells drilled, 451 producers, 12 dry. **Deepest Hole:** Tropical Oil Company's No. 113; depth, 3970 feet; abandoned in Cretaceous shales and plugged back to lower Tertiary producing sands. **Productive Area:** Approximately 5300 acres. Field defined on all sides. **Production History:** Production to December 31, 1933: 83,926,519 barrels; production January 1, 1934-June 30, 1934: 4,100,065 barrels; average daily production June, 1934: 30,803; number wells producing at June 30, 1934: 283; average gravity, approximately 27°. **Present Activity:** No tools operating June 30, 1934. **Principal Lease Holders:** Entire field owned and operated by Tropical Oil Company.

La Cira (Oil)

Location: Department of Santander, in Magdalena Valley, 12 miles southeast of Barrancabermeja. Distance from Caribbean coast 350 miles. **Discovery Data:** Oil impregnated sandstones on and near moderate uplift. First production Tropical Oil Company Well 125, 2357 barrels 26.4° gravity. **Geology:** Anticline genetically related to fault of small magnitude. It is one of the De Mares Concession anticlines. **Producing Formations:** Three producing zones of sandstones interbedded with shales, increasing in productivity downward from surface. Upper zone Oligocene in age and is encountered above 1000 feet. Oil is of asphaltic base and has gravity of about 21°. Middle zone Oligocene in age and encountered at about 1200 feet. Oil is of asphaltic base and has gravity of about 24°. Lowest zone Eocene (or Oligocene?) in age and is encountered from 2200 to 3300 feet in depth. Oil of asphaltic base and has gravity of 23-27°. Average depth of completion is about 1950 feet. **Extent of Development:** Up to June 30, 1934: 225 producers and 1 dry hole. **Deepest Hole:** Tropical Oil Co.'s No. 304, depth 3536 feet. Abandoned in Cretaceous shales and plugged back to lower Tertiary producing sands. **Productive Area:** Approximately 4700 acres. About ½ drilled up as of June 30, 1934. **Production History:** Production to December 31, 1933: 48,202,641 barrels; production January 1, 1934-June 30, 1934: 3,440,855 barrels; average daily production June, 1934: 25,320 barrels; number wells producing at June 30, 1934: 135; average gravity, approximately: 25°. **Present Activity:** 3 strings of rotary tools operating as of June 30, 1934. **Principal Lease Holders:** Entire field owned and operated by Tropical Oil Company.

La Colorado (Reserve)

Location: De Mares Concession; department of Santander; see "De Mares Concession." **Geology:** Anticline. **Deepest Hole:** Tropical Oil Co.'s La Colorado 6, abandoned at 6162 feet February 11, 1932.

La Mugrosa (Reserve)

Location: Department of Santander; Lower Magdalena Valley; see "De Mares Concession." **Geology:** Anticline.

La Puerta (Reserve)

Location: Department of Santander; Lower Magdalena Valley; see "De Mares Concession." **Geology:** Anticline.

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Leonard Concession (Oil)

Location: Department of Santander; near Aguas Claras; 40 mi. northeast of Infantas field. **Discovery Data:** Leonard Oil Co. drilled No. 1 in February, 1926, completed for 200 to 300 bbls. 28-30 gravity asphaltic oil daily, at 900 ft. **Geology:** Data not available. **Producing Formations:** Data not available. **Extent of Development:** Eight tests drilled, including several small oil producers. Largest well completed pumped and swabbed 50 bbls. per day. **Deepest Hole:** No data. **Productive Area:** No data. **Production History:** Produced 7000 bbls. in 1926 to 1929. Production used as fuel for drilling. **Present Activity:** Area has not been developed for past six years. **Principal Lease Holders:** Gulf Oil; Leonard Oil Co.

For the foregoing data on fields of Colombia, South America, The OIL WEEKLY is primarily indebted to Senor Don Alberto Lobo-Guerrero, chief of the department of mines and petroleum for the government, and to the Tropical Oil Company.

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Oil and Gas Fields of Ecuador

Ancon (Oil)

Location: Province of Guayas; Canton Santa Elena; 80 miles west of Guayaquil. Field, sometimes called Santa Elena. **Discovery Data:** Oil seepage led to first drilling. Discovery well was No. 1 of the Ancon Oil Company of Ecuador, completed in 1912. Production never measured (small). **Geology:** Accumulation in lenticular sands and crush breccias in a block-faulted area. **Producing Formations:** Soft sandstones and hard fractured sandstones. Eocene age. Encountered from surface to 1500 feet and at from 2000 to 4000 feet. Upper sand yields 37.6° A.P.I. gravity; lower sand yields 41.9° A.P.I. gravity oil. Upper sand oil is Naphthene base; lower is paraffin base. **Extent of Development:** Up to June 30, 1934: 405 oil and gas wells and 14 failures. **Deepest Hole:** Anglo Ecuadorian Oilfields Ltd.'s No. 49, A.E.O. Depth 4310 feet. Completed November 10, 1928. Upper Eocene. Produced nothing. **Productive Area:** 5000 acres for oil and gas as of June 30, 1934. The field is not yet defined on all sides. **Production History:** Total through 1933: 9,756,455 barrels; total first six months of 1934: 758,293 barrels; daily average production June 30, 1934: 4,300 barrels; wells on production June 30, 1934: 402. Of above daily yield 800 barrels is 37.6° A.P.I. gravity, 3,000 barrels is 42.3° A.P.I. gravity, and 500 barrels is 39.6 A.P.I. gravity. **Present Activity:** Three regular rotaries. **Principal Lease Holders:** Anglo-Ecuadorian Oilfields, Ltd.

Cautivo (Oil)

Location: On Ancon Point, about 96 miles west of Guayaquil, 17 kilometers from Santa Elena field; 12 miles west of Ancon. Cautivo is a small, "pocket-handkerchief" field, shallow pits yielding heavy oil: 40 barrels per day of 47° gravity and about 100-125 barrels per day of 37-39° gravity oil. Windmills used for pumps. Generally considered part of Ancon, which see.

La Libertad (Oil)

Location: A small, practically non-commercial pool of the "pocket-handkerchief" type. Wells are dug by hand.

Las Salinas (Oil)

Location: A small, "pocket-handkerchief" field of little commercial value. Wells are excavated by hand.

Puerto Rico (Oil)

Location: A small field of the "pocket-handkerchief" type. Practically no commercial value as exploited. Wells are excavated by hand.

Santa Elena (Oil)

Location: Province of Guayas, Canton of Santa Elena; this is local name sometimes used for Ancon, which see.

Thanks are extended to Anglo-Ecuadorean Oilfields, Ltd., for the data presented on Ancon field, Ecuador.

Oil and Gas Fields of Peru

Cabo Blanco (Oil)

Location: 12 miles west of Lobitos in northwest Peru; see Lobitos District.

El Alto (Oil)

Location: 12 miles from Lobitos field; see Lobitos District.

Jabonillal (Oil)

Location: In La Brea y Parinas concession; see same.

La Brea y Parinas Estate (Oil)

Location: Department of Piura in Northwest Peru at the most westerly point of South America, 950 miles south of Panama, 650 miles north of Lima. **Discovery Data:** Seepages have been known since the time of the Incas. The Conquistadores and others are supposed to have pitched their ships here. First wells at Negritos are said to have been commenced in 1873-1874 by Mr. Henry Meiggs of Lima. Earliest wells of which record is preserved were drilled by Mr. E. Fowkes in 1875. The first well, which was 330 feet deep, is said to have produced at rate of 400 bbls per day. **Geology:** An intricate arrangement of normal fault blocks associated with anticlinal folds. The sizes of the blocks vary upward from about one eighth of a square mile and are irregularly folded. The fault planes usually serve as marginal barriers preventing the movement of fluid between blocks. **Producing Formations:** (1) Upper Eocene or Lower Oligocene (a) Verdun formation—Moderately coarse grits with interbedded shales. (2) Upper Eocene (a) Lomitos Formation—varies from a fine-grained sandstone with numerous thin shale beds to a coarse-grained sandstone grading into conglomerate. Lenticular in nature. Most important producing horizon in field. Thickness, 0-400 ft. (3) Middle Eocene (a) Parinas Formation—medium-grained sandstone strata, moderately tight and parted by thin beds of shale. Thickness, 700-1000 ft. Lower and Middle Eocene (a) Negritos-Salina Formation—a series of sandstone and shale strata, sometimes coarse grained, but usually fine-grained and with a low porosity. Thickness up to 800 ft. Production depths vary from 60 to over 6000 ft. and initials from a few barrels to 11,000 bbls. per day. The oil has a "mixed" base and is about 38° Be. gravity. **Extent of Development:** 2838 wells drilled; 1808 producing; 476 exhausted; 423 dry; 131 had drilling difficulties. **Deepest Hole:** No. 1991; International Petroleum Company, Ltd.; depth, 6266 ft.; completed March 8, 1928; at present shut in; formation unknown; initial production, 16 bbls. daily. **Productive Area:** 13,369 acres of which 2267 are exhausted. Field not fully defined as yet. **Production History:** Produced to end of 1933: 119,654,506 bbls.; Produced Jan./June 30/34: 6,626,374 bbls; Daily average, June 30/34: 39,568 bbls; Wells producing June 30/34: 1,808; Gravity—June 30/34: 34.6 Be, 4,602 bbls; 38.9 Be., 34,966 bbls. **Present Activity:** Drilling or deepening of 9 wells in prog-

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PERU—La Brea y Parinas Estate—*Continued*

ress June 30, 1934, with 1 combination rig, 1 standard rig, 2 rotary rigs and the rest Star machines. **Principal Lease Holder:** Wholly owned by International Petroleum Company, Limited.

Lobitos (Oil)

Location: Department of Piura; Province of Paita, District of Mancora, 15 miles from Negritos field, 70 miles northwest from Piura, 50 miles north from Paita, 30 miles south from Mancora. **Discovery Data:** Oil seepages caused first drilling. Discovery well was No. 6, completed in 1904 by Peruvian Petroleum Syndicate. Depth, 1627 ft.; oil production, 50 bbls. per day. **Geology:** Oil preserved in lenticles of sheared sandstone formed by submarine landslips soon after deposition. Accumulation generally around the axes of much faulted anticlines. **Producing Formations:** Production obtained from 7 main horizons, all of Eocene age. All sandstones with interbedded conglomerate bands. Oil of mixed base. Gravity variable. Minimum about 26° A.P.I.; maximum about 45° A.P.I. Highest horizon: surface down to 1,700 ft.; lowest, 3,500 ft.—6,500 ft. **Extent of Development:** Up to June, 1934: 855 oil wells and 92 failures. **Deepest Hole:** Well No. 414-A-3, completed by Compania Petrolera Lobitos at 6585 feet in lowest oil horizon. Date completed, Dec. 8, 1931. It produced 240 bbls. per day. **Productive Area:** 66 sq. Kms. as of June 30, 1934. Field is not yet defined. **Production History:** Since 1906 to June 30, 1934: 31,657,300 bbls.;January 1, 1934-June 30, 1934: 1,002,502 bbls. Average production: 5800 bbls. per day. 596 wells on production June 30, 1934, yielding 36.8° A.P.I. gravity oil. **Present Activity:** 11 cable tools running June 30, 1934. **Principal Lease Holder:** Compania Petrolera Lobitos.

Lobitos District (Oil)

Note: Includes Restin, Cabo Blanco and El Alto.
Location: Department of Piura in northwest Peru, 15 miles north of Talara. **Discovery Data:** Seepages have been known since pre-colonial times. In Lobitos field prospecting was begun in 1901 by Peruvian Petroleum Syndicate, an English company under management of A. Milne & Co. of Callao. First success was met by their No. 3 well which struck oil at 400 ft. Oil in quantity was not found until 1905. **Geology:** Fault blocks. **Producing Formations:** (1) Eocene Age: (a) Terebratula Beds—a shallow horizon now largely exhausted. (b) Cabo Blanco—Thick, medium to coarse-grained sandstone. (c) Lower Caverno—a series of sands interbedded with purple and red shales at an average depth of 4000 feet. Probably equivalent to the Salina Formation of the La Brea y Parinas Estate. Wells are deep, up to 6000 feet with most of them probably more than 3000 feet. **Extent of Development** Up to June 30, 1934: 827 wells drilled. Total footage, 1,891,080. **Deepest Hole:** Depth (?) Formation black splintery shales and hard sandstones, probably of Cretaceous age. Other data not available. **Productive Area:** Concessions being drilled have an area of 37,560 acres. In the Lobitos field proven area amounts to approximately 2000 acres. **Production History:** 1933 production: 1,994,700 bbls; for other data see "Lobitos." **Present Activity:** Included under "Lobitos." **Principal Lease Holder:** La Compania Petrolera Lobitos.

Lomitas (Oil)

Location: La Brea y Parinas Concession; see same. **Producing Formations:** "Lomitas" formation varies from a fine-grained sandstone with numerous thin shale beds to a coarse-grained sandstone grading into conglomerate. Lenticular in nature. Thickness is from one foot to 400 feet. **Production History:** Included in La Brea y Parinas Estate.

Negritos (Oil)

Location: 15 miles from Lobitos field; see also La Brea y Parinas Estate. **Discovery Data:** Henry Meiggs of Lima started drilling in 1873 or 1874. Mr. E. Fowkes drilled in 1875. Discovery well was 330 feet deep and yielded 400 bbls. per day. **Producing Formations:** Steeply faulted and very irregular, ranging in depths from 60 feet to 6000 feet. (Average depths 1800 to 2000 feet). Field consists of large group of producing areas possessing common characteristics but yielding qualities of oil from varying depths. Gravity ranges from 25° to 52° A.P.I. See also "Producing Formations" under "La Brea y Parinas."

Restin (Oil)

Location: Department of Piura in northwest Peru; see Lobitos.

San Pedro (Oil)

Location: La Brea y Parinas Concession; see same.

Verdun (Oil)

Location: La Brea y Parinas Concession; see same. **Producing Formations:** Moderately coarse grits of Verdun formation belonging to Upper Eocene or Lower Oligocene. **Production History:** Included in La Brea y Parinas Estate.

Zorritos (Oil)

Location: Department of Tumbes in northwest Peru. About 18.5 miles southwest of the town of Tumbes and about 70 miles north of Lobitos. **Discovery Data:** Seepages have been known since pre-colonial times. Periodic attempts to work these deposits on a commercial scale date back as far as 1862. Sr. Don Diego de Lama, wealthy estate owner of Northwestern Peru, explored Zarritos field area in 1864. First well said to have been drilled by a Mr. Prentice of Pennsylvania who visited Peru in 1867. Well No. 1 at depth of 146 feet is reported to have yielded 60 bbls. per day. Diamond drill was used. **Geology:** Large tilted block faults. **Producing Formations** (1) Miocene (a) Zorritos Formation—sandstones, conglomerates and shales. Thickness about 750 feet. Producing formation encountered at depths of from 300 feet to 1700 feet. Gravity of oil about 38° Be. **Extent of Development:** 380 wells drilled. Total footage approximately 400,000 as of June 30, 1934. **Deepest Hole:** Not known, but it is reported that a depth of 2900 feet was reached. No production was obtained from the deeper tests. **Productive Area:** Estimated at 395 acres in June, 1934. **Production History:** Total production to end of 1933, 2,927,500 barrels. 1933 production, 57,256 barrels. 6 months 1934, estimated at 29,000 barrels. 1933 daily average production, 157 barrels. Wells producing June 30, 1934, 40. **Present Activity:** 1 well drilling by percussion method. **Principal Lease Holder:** F. G. Piaggio & Sons.

Acknowledgment is made to the director of the Ministerio de Hacienda of Peru for his cooperation in presenting The OIL WEEKLY with certain historical data. Thanks are also extended to International Petroleum Company, Lobitos Oilfields, Ltd., Oliver B. Hopkins, James Barclay Young of Lima, and to Ing. A. Cabrea La Rosa and O. Quiroga for valuable contributions.

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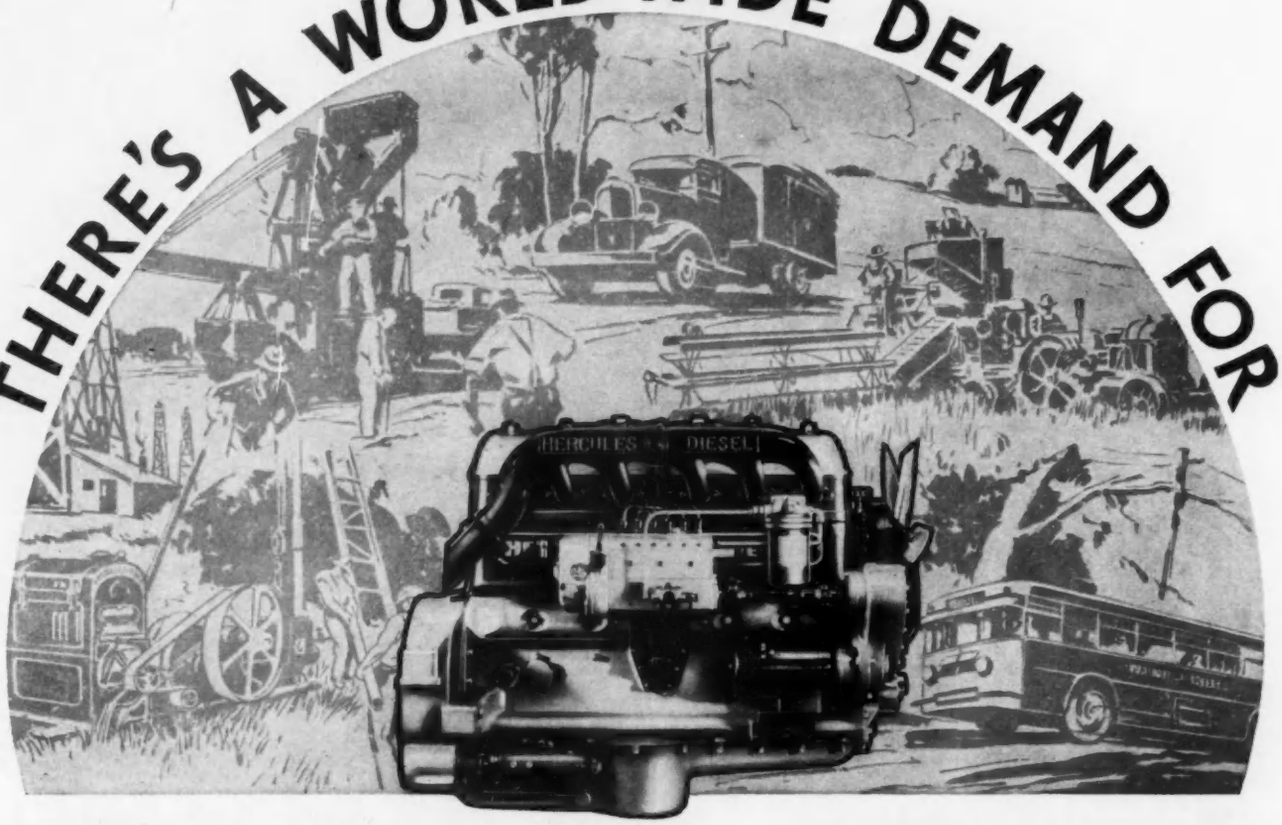

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Oil and Gas Fields of Trinidad

General Information

Location: Oil fields of Trinidad are principally in the southwestern extremity of the island. They are within a relatively small area, comparable with a county in one of the oil producing states of the United States. **Geology:** Formations are strongly folded, with numerous parallel anticlinal folds running about North 65° East. There are three major folds, the Northern, Central, and Southern Ranges, extending across the island in positions indicated. The persistent anticlinal folds so formed furnish the oil fields. **Producing Formations:** Oil production is from formations ranging in age from Upper Miocene to Lower Middle Cretaceous. But bulk of production has been from Miocene sands. Sands are prolific and numerous. Oil sands vary from 10 to 50 feet in thickness. **Production History:** Cumulative production of Trinidad was given in *Transactions*, A.I.M.E., as 64,789,891 barrels, from about 895 wells, an average of about 70,000 barrels per well. There had been drilled about one well per five acres, indicating recovery to that time of about 14,000 barrels per acre. The production by years through 1932 was given as follows:

Year	Barrels Production	Year	Barrels Production
1908	169	1921	2,354,159
1909-10 (15 months)	10,372	1922	2,444,751
1910-11 (12 months)	125,112	1923	3,050,872
1911-12	285,307	1924	4,284,000
1912-13	503,616	1925	4,387,000
1913-14	643,316	1926	5,278,000
1914-15	1,050,112	1927	5,200,000
1915 (9 months)	671,124	1928	7,750,000
1916	927,877	1929	8,715,652
1917	1,602,311	1930 (Estimated)	9,500,000
1918	2,082,068	1931	9,853,976
1919	1,841,046	1932	10,160,000
1920	2,083,027		

Apex (Oil)

Location: South of Pitch Lake, in southwestern part of island. Part of Fyzabad area. This field is a part of the Fyzabad area. Additional details are embodied under that heading. **Discovery Data:** First drilled about 1919. **Geology:** Open anticline. **Extent of Development:** 130 oil wells through 1930. **Principal Lease Holders:** Apex (Trinidad) Oilfields, Ltd.

Barrackpore (Oil)

Location: 15 miles east southeast of Pitch Lake, La Brea; about 7 miles southeast of San Fernando. **Discovery Data:** Asphalt seepages; discovery well was South Naparima (Trinidad) Oil Co.'s No. 1; drilled 1911; depth 291 feet; initial production about 700 barrels in first nine months. **Geology:** Field is on flank of steep anticline. One report says thrust fault responsible for oil accumulation. **Producing Formations:** Oil production comes from soft sands of the Miocene found at from 500 to 2000 feet; specific gravity 0.834-0.952; asphaltic base oil. **Extent of Development:** 83 oil wells and 23 failures to June 30, 1934. **Deepest Hole:** No. 31, Trinidad Leaseholds, Ltd.; depth 3025 feet; abandoned August, 1925; north central part of field; stopped drilling in Miocene shales; no production. **Productive Area:** About 450 acres as of June 30, 1934. Productive area limited up-dip by outcrop, down-dip by edge water. Lateral extension not fully defined. **Production History:** 4 million barrels to end of 1933; 75,000 barrels first six months 1934; 430 barrels per day as of June 30, 1934, when there were 48 wells on production; specific gravity of oil is 0.834-0.952. **Present Activity:** No drilling in July, 1934. **Principal Lease Holder:** Trinidad Leaseholds, Limited.

Bernstein (Oil)

Location: In Southern Basin, 6 miles southeast Pitch Lake and 8½ miles inland from coast. This field is a part of the Fyzabad area, and additional details are embodied under that heading. **Discovery Data:** Trinidad Leaseholds, Ltd. got first production in about 1913. **Geology:** Small closed fold. **Producing Formations:** Sands at 800-900 and 1650-1850 feet. **Principal Lease Holder:** Trinidad Leaseholders, Ltd.

Boodosingh (Oil)

NOTE: Boodosingh Field is among the Pitch Lake-Parrylands group, and additional details are embodied under the Parrylands heading.
Location: 3 miles south of Pitch Lake, La Brea. **Principal Lease Holder:** Kern Trinidad Oilfields, Ltd.

Brighton (Oil)

Location: Adjoins Pitch Lake to the southwest; southwest of San Fernando. This field is one of the Pitch Lake-Parrylands group, and additional details are embodied under the Parrylands heading. **Discovery Data:** First drilled in 1910. **Geology:** Anticline. **Producing Formations:** Cruse zone, lower middle Miocene. **Present Activity:** No recent development. **Principal Lease Holder:** General Asphalt Company, (Trinidad Lake Petroleum Company, Ltd.).

Cedros (Oil)

Location: Southwest part of island, south of Pitch Lake. **Discovery Data:** First developed in 1910. **Geology:** Anticline with horst.

Cruze (Oil)

Location: This is a part of the Guapo field, Parrylands area, and additional details are embodied under the Guapo and Parrylands headings. **Principal Lease Holder:** Trinidad Central Oil Fields, Ltd.

Forest Reserve (Oil)

Location: South of Pitch Lake, in southwestern part of island. Part of Forest Reserve—Bernstein—Oropuche—Apex—Fyzabad producing area. See Fyzabad. **Extent of Development:** 275 oil wells completed through 1930. **Production History:** Was producing in 1925. **Principal Lease Holders:** Trinidad Leaseholds, Ltd., and associated companies; Trinidad Petroleum Development Company, Ltd.

Fyzabad (Oil)

NOTE: Information given under this heading applies to the whole group of fields or pools, consisting of the following: Apex, Bernstein, Forest Reserve, Fyzabad, Roodal, San Francique.
Location: 6½ miles southeast and south southeast of Pitch Lake, La Brea. **Dis-**

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TRINIDAD—Fyzabad—*Continued*

covery Data: Outcropping oil sands, and oil and gas seepages. Discovery well was No. 1, Trinidad Leaseholds, Ltd.; drilled in 1914; depth 493 feet; initial production 11,000-12,000 barrels in first month. **Geology:** General anticlinal structure, with domal uplifts in echelon. Forest Clay used as a marker. **Producing Formations:** Oil production comes from soft sands of the Miocene found at from 100 to 3700 feet; specific gravity 0.8236-0.9688; asphaltic base oil, with occasional paraffin base oils at depth. **Extent of Development:** 608 oil wells, one gas well, and 57 failures to June 30, 1934. **Deepest Hole:** No. B. 196, Trinidad Leaseholds, Ltd.; depth 6400 feet; completed May, 1934; central area, southern flank. Stopped drilling in Miocene. Initial production about 1500 barrels per day. **Productive Area:** About 4500 acres proved for oil up to June 30, 1934. Field not yet defined. **Production History:** 57 million barrels to end of 1933; 3½ million barrels first six months 1934; field was producing 20,000 barrels per day as of June 30, 1934, when there were 378 wells on production. Specific gravity of the oil: 0.8236-0.9688. **Present Activity:** 12 rotary rigs running in July, 1934. **Principal Lease Holders:** Apex (Trinidad) Oilfields, Ltd., New Dome Oilfields, Ltd., Petroleum Options (1925), Ltd., Trinidad Investments, Ltd., Trinidad Leaseholds, Ltd., Trinidad Oil Fields Operating Co., Ltd.; New (Oropuche) Trinidad Oilfields, Ltd.; Trinidad Petroleum Development Co., Ltd.; Apex Co. of Trinidad; Oropuche Oilfields, Ltd.

Guapo (Oil)

Location: In southwestern part of island; south of Pitch Lake. Just southwest of the Lot One-Parrylands area. Guapo field is among those of the Parrylands group, and additional details are embodied under that heading. **Extent of Development:** About 50 oil wells through 1930. **Production History:** Active development and production program was in progress in 1931. **Principal Lease Holders:** Trinidad Petroleum Development Company, Ltd.; Kern Trinidad Oilfields, Ltd.; Trinidad Central Oilfields, Ltd.

Guayaguayare (Oil)

Location: 45 miles east and little south of Pitch Lake, La Brea, southeastern tip of island. **Discovery Data:** Survey revealed anticlinal structures, asphalt, oil and gas seepages. Discovery well was General Petroleum Properties' No. 1, drilled 1902, depth 1015 feet. Initial production: less than 50 bbls. Specific gravity .896. **Geology:** Network of anticlines. Eocene and Cretaceous cores unconformably overstepped by younger tertiary beds. **Producing Formations:** Oil found at from 300 to 800 feet. Pliocene: Deltaic sands with small production of light oil (av. gravity .85). Miocene: Cyclammina clays with scattered oil sands: Lower Moruga beds (av. gravity .87). Cretaceous: Small production from fissures in sandy marl (av. gravity .84). **Extent of Development:** 54 oil wells and 29 failures drilled up to June 30, 1934. **Deepest Hole:** No. 29 drilled by Trinidad Leaseholds, Limited; depth was 6011 feet; abandoned December, 1933. This was a synclinal test. Well stopped in Miocene beds. **Productive Area:** The majority of wells have been drilled for shallow production on 3 narrowly confined areas. Deep drilling of recent years has not yet revealed enough data to allow of a proper definition of the field. **Production History:** To June 30, 1934: 500,000 barrels; from Jan. 1, 1934, to June 30, 1934: 95,000 barrels; to end of 1933: 405,000 barrels. **Present Activity:** 2 rotary rigs running as of June 30, 1934. **Principal Lease Holders:** Trinidad Leaseholds, Limited; Trinidad Central Oilfields, Limited.

Kern Eastern (Oil)

Note: This is a part of the Parrylands field, and additional details are embodied under that heading. **Principal Lease Holder:** Kern Trinidad Oilfields, Ltd.

Kern Western (Oil)

Location: This is a part of the Parrylands field, and additional details are embodied under that heading. **Principal Lease Holder:** Kern Trinidad Oilfields, Ltd.

La Brea (Oil)

Location: South and west of, and adjacent to Pitch Lake, La Brea. **Discovery Data:** Field is in vicinity of Pitch Lake, where there are asphalt seeps. Discovery well was No. 2 Trinidad Lake Petroleum Co., Ltd., drilled in 1909. Depth 750 feet, initial production 35-40 barrels per day. **Geology:** Anticlinal wrinkles in Pliocene beds, which unconformably overlie older Tertiary formations. **Producing Formations:** Asphalt base production comes from soft sands of Pliocene and older. Oil found at from 100-2114 feet and has a specific gravity of .904-.979. **Extent of Development:** 26 oil wells and 15 failures drilled up to June 30, 1934. **Deepest Hole:** No. 24, Trinidad Lake Petroleum Co., Ltd., depth 2188 feet, completed August, 1912, initial production: 100 barrels in first month. **Productive Area:** About 600 acres proved for oil as of June 30, 1934. Field was not defined at this date. **Production History:** 1,500,000 barrels to end of 1933; 10,000 barrels first six months 1934; 70 barrels per day as of June 30, 1934, when there were nine wells on production. Specific gravity of oil ranges from .904-.979. **Present Activity:** No drilling. **Principal Lease Holder:** Trinidad Lake Petroleum Co., Ltd.

Lamont (Oil)

Location: This field is a part of the Oropouche Lagoon—Lamont producing area. See Oropouche Lagoon for additional information. South of San Fernando and east of Pitch Lake. **Geology:** Anticline. **Principal Lease Holder:** Trinidad Petroleum Development Company, Ltd.

Lizard Springs (Oil)

Location: In the Guayaguayare district. Additional details appear under that heading. **Extent of Development:** A small increase in drilling and production had been reported in latter part of 1931. **Production History:** Relatively small production had been reported up to latter part of 1931. **Principal Lease Holder:** Trinidad Central Oilfields, Ltd.

Los Bajos (Oil)

Location: About 3 miles south of Fyzabad area fields, and similar distance northeasterly from the Palo Seco field. **Discovery Data:** First drilled in 1915. **Geology:** Production from a nose. Faulting also reported. **Extent of Development:** Development had been discontinued in 1930. In 1931 some limited drilling proved disappointing. **Principal Lease Holders:** United British Oilfields of Trinidad, Ltd.; West Indies Petroleum Syndicate; Trinidad Petroleum Development Company, Ltd.

Lot One Field (Oil)

Location: 3 miles south of Pitch Lake, on Lot One of Morne l' Enfer Forest Reserve and adjoining properties. This is a part of the Parrylands area; and additional data are embodied under that heading. **Discovery Data:** First drilled in 1911. **Geology:** Anticline. **Principal Lease Holders:** Trinidad Petroleum Development Company, Ltd.; United British Oilfields of Trinidad, Ltd.; C. C. Stollmeyer,

TRINIDAD—Lot One Field—*Continued*

Ltd., General Asphalt Company (Trinidad Lake Petroleum Company, Ltd.); Kern Trinidad Oilfields, Ltd.

Lot Four Field (Oil)

Location: South of Pitch Lake, on Lot Four of Morne l' Enfer Forest Reserve and adjoining properties. This is a part of the Parrylands area, and additional information is embodied under that heading. **Production History:** Was producing in 1925. **Principal Lease Holders:** United British Oilfields of Trinidad, Ltd., and others; General Asphalt Company.

Lot Five Field (Oil)

Location: South of Pitch Lake, on Lot Five of Morne l' Enfer Forest Reserve and adjoining properties. This is a part of the Parrylands field, and additional details appear under that heading. **Production History:** Was producing in 1925. **Principal Lease Holders:** United British Oilfields of Trinidad, Ltd.; General Asphalt Company.

Oropouche Lagoon (Oil)

Location: About 5 miles south and slightly west of San Fernando; about 10 miles due east of Pitch Lake. A part of Oropouche Lagoon—Lamont producing area. **Geology:** Anticline. **Principal Lease Holder:** British Controlled Oilfields, Ltd.

Palo Seco (Oil)

Location: 10 miles south by east of Pitch Lake, La Brea. **Discovery Data:** Oil and gas seepages; discovery well was No. 1, Trinidad United Oilfields. Drilled in 1910. Depth 100 feet. Initial production 55 barrels in first two months. **Geology:** Field is located on the north flank of an asymmetric anticline. **Producing Formations:** Oil production comes from soft sand of the Miocene age found at from about 100 to 2900 feet. Specific gravity .818-.925; asphaltic base, with a few occurrences of paraffin base oil at depth. **Extent of Development:** 214 oil wells and 18 failures drilled up to June 30, 1934. **Deepest Hole:** No. 20, Siparia Trinidad Oilfields, Ltd., depth 5302 feet, completed September, 1933. Situated on northwest edge of field. Initial production about 250 barrels per day. **Productive Area:** About 2500 acres as of June 30, 1934. Field not defined as of that date. **Production History:** 11,000,000 barrels to end of 1933; 625,000 barrels first six months 1934. 4400 barrels per day as of June 30, 1934, when there were 125 wells on production, yield oil with a specific gravity of from .818-.9254°. **Present Activity:** Five rotary rigs running. **Principal Lease Holders:** Siparia, Trinidad Oilfields, Ltd.; C. C. Stollmeyer; Trinidad Oil Fields Operating Co., Ltd., Trinidad Petroleum Development Co., Ltd.; British Controlled Oilfields, Ltd.

Penal (Oil)

Location: About seven miles south and slightly east of San Fernando. A few miles south of point midway between Barrackpore and Lagoon fields. **Discovery Data:** Discovered by Oropouche Oilfields, Ltd. **Principal Lease Holder:** Oropouche Oilfields, Ltd.

Pitch Lake (Oil)

Location: Adjacent to Brighton field. This field is among the Pitch Lake-Parrylands group, and additional details are included under Parrylands. **Discovery Data:** Extraction of asphalt began in 1867. The new Trinidad Lake Asphalt Company, Ltd., began drilling at Pitch Lake in 1908, and in second well got flowing oil production. **Producing Formations:** 500 to 1500 feet; asphalt base oil. **Production History:** In 1908, 169 barrels; 436,805 barrels in 1912; 1,599,455 barrels in 1917. Five million long tons of asphalt extracted by 1925. **Principal Lease Holders:** General Asphalt Company; Trinidad Oilfields Operating Company, Ltd.

Point Fortin (Oil)

Location: 5½ miles southwest of Pitch Lake, La Brea. **Discovery Data:** Oil and asphalt seepages. Discovery well was No. 3, Trinidad Oilfields Ltd., drilled 1908; depth, 712 feet; initial production, about 300 barrels in first year. **Geology:** Anticline with faulting as important feature. **Producing Formations:** Oil production comes from soft sands of Miocene age found at from 90 to 1940 feet and yielding oil with a specific gravity of from .895 to .946, asphalt base. **Extent of Development:** 78 oil wells and 15 failures drilled up to June 30, 1934. **Deepest Hole:** No. 211, United British Oilfields of Trinidad, Ltd. Depth 5602 feet. Completed July, 1931. Eastern part of field. Stopped in Eocene. Initial production 80 barrels per day. **Productive Area:** About 850 acres as of June 30, 1934, at which time field had not been defined. **Production History:** 2,100,000 barrels to end of 1933; 2500 barrels first six months 1934; 20 barrels per day as of June 30, 1934, when there were 30 wells on production. **Present Activity:** No drilling in July, 1934. **Principal Lease Holder:** United British Oilfields of Trinidad, Ltd.

Parrylands (Oil)

NOTE—Information given under this heading applies to the several pools or fields surrounding Pitch Lake, as well as to pools of the Parrylands district proper, a little to the south.

Fields of the Pitch Lake environs include: Brighton, Boodosingh, Pitch Lake, Vessigny.

The Parrylands group of producing areas includes: Cruze, Guapo, Kern Eastern, Kern Western, Lot One, Lot Four, Lot Five, Parrylands.

(The Point Fortin field is to the southwest of the Parrylands area, and the Fyzabad district to the southeast.)

Location: 3 miles south of Pitch Lake, La Brea, on Lot Three of Morne l' Enfer Forest Reserve and adjoining properties. **Discovery Data:** Outcropping oil sands and seepages of gas and oil; discovery well was No. 3, C. C. Stollmeyer, drilled in 1911. Depth 125 feet; initial production, 300 barrels in first month. **Geology:** Anticlinal structures. **Producing Formations:** Oil production comes from soft sands of the Miocene age found at from about 100 to 1200 feet and yielding asphaltic base oil with a specific gravity of from .880° to .975°. **Extent of Development:** 336 oil wells, two gas wells and 54 failures up to June 30, 1934. **Deepest Hole:** No. 63A, Kern Trinidad Oilfields Ltd. Depth, 4340 feet. Completed May, 1931. West side of area. Stopped drilling in Eocene. Initial production 20-25 barrels per day. **Productive Area:** About 3000 acres as of June 30, 1934, when field had not been defined. **Production History:** 18,000,000 barrels to end of 1933; 900,000 barrels first six month 1934; 6100 barrels per day as of June 30, 1934, when there were 148 wells on production yielding oil with a specific gravity of .880-.975. **Present Activity:** Eight rotary rigs running. **Principal Lease Holders:** Kern Trinidad Oilfields, Ltd.; Trinidad Central Oilfields, Ltd.; Trinidad Lake Petroleum Co., Ltd. (General Asphalt Co.); United British Oilfields of Trinidad, Ltd.; Trinidad Oil Fields Operating Co., Ltd.; Trinidad Petroleum Development Co., Ltd.; C. C. Stollmeyer.

TRINIDAD—*Continued*

Rio Claro (Oil)

Location: Central part of island; east of Rio Claro; about 10 miles east and some south of Tabaquite field; about 15 miles north and some west of Guayaguayare field. **Production History:** Was producing in 1931-1932. **Principal Lease Holder:** Trinidad Central Oilfields, Ltd.

Roodal (Oil)

Note: Roodal is a part of the Fyzabad area, and additional details are embodied under that heading. **Principal Lease Holder:** Oropouche Oilfields, Ltd.

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San Francique (Oil)

NOTE: This field is a part of the Fyzabad area, and additional details are embodied under that heading.

Location: 6½ miles southeast and south southeast of Pitch Lake, La Brea. **Producing Formations:** Reported at 100 to 2000 feet; 4000 to 5000 feet; asphalt base oil.

Siparia (Oil)

Location: 10 miles south by east of Pitch Lake, La Brea. Field generally considered part of Palo Seco, which see. **Principal Lease Holder:** Apex (Trinidad) Oilfields, Ltd.

Tabaquite (Oil)

Location: Central part of the island; on the Central Range; 30 miles northeast of Pitch Lake; 4 miles southeast of Tabaquite railroad station. **Discovery Data:** Was producing as early as 1920. First production established by Trinidad Central Oilfields, Ltd. **Geology:** Thrust fault. **Producing Formations:** Tabaquite formation, Eocene age, at 300 to 500 feet. Paraffin base oil, 42 gravity. **Extent of Development:** 140 wells drilled through 1923. Very little drilling since. At that time there were 40 wells on production. **Deepest Hole:** About 1800 feet. **Production History:** In 1933 the year's production was 21,000 barrels, having been for several years on the decline. **Principal Lease Holder:** Trinidad Central Oilfields, Ltd.

Vessigny (Oil)

NOTE: Vessigny is among the fields of the Pitch Lake-Parrylands group, and additional details are included under Parrylands.

Location: 3 miles south of Pitch Lake, La Brea. **Principal Lease Holder:** General Asphalt Co.

Miscellaneous Fields (Oil)

Location: Various parts of South of Island. **Discovery Data:** Oil seepages and anticlinal features; First well drilled 1867 in Aripero but was dry. First productive well, No. 1 Icacos (Trinidad) Development Co., Ltd., drilled in 1912 to a depth of 1463 feet. Produced 1400 barrels oil in 1913. **Geology:** Mostly anticlinal. **Producing Formations:** Soft oil sands or silts of Pliocene to Cretaceous ages, yielding oil from .8189 to .980 specific gravity, mostly asphaltic, with some cases of paraffin base oils. **Extent of Development:** 41 oil wells and 116 failures to June 30, 1934. **Deepest Hole:** Guapo 1, Trinidad Petroleum Development Co., Ltd.; depth, 4260 feet. Abandoned January, 1927. No production. **Productive Area:** No definite productive area for any of these minor minor fields which in many cases have only given small and temporary productions. **Production History:** 435,000 barrels to end of 1933. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Various.

While most of the foregoing information on fields of Trinidad comes from private sources of research, The OIL WEEKLY takes pleasure in extending thanks to United British Oilfields of Trinidad, Ltd., and to Apex Trinidad Oilfields, Ltd., for co-operation in furnishing data on several fields in which they operate.

Oil and Gas Fields of Venezuela

Amana (Oil)

Location: District of Mara; 45 miles northwest of Maracaibo, State of Zulia; near Limon. **Discovery Data:** Discovery well; Venezuela Gulf Oil Co.'s Amana 1, completed April 27, 1928, at depth 4182 feet. Yield 28-30° gravity, paraffin base oil. **Geology:** Anticlinal structure. **Producing Formations:** El Paso sand (Misoa), Eocene age, at 4182 feet. Other reports showed as Frontal sandstone. **Extent of Development:** Only one well, a producer, drilled up to June 30, 1934. **Deepest Hole:** See data on discovery well. **Productive Area:** Only one productive well completed. **Production History:** 23,600 barrels to December 31, 1933. **Present Activity:** None. **Principal Lease Holders:** Venezuelan Gulf Oil Company.

Ambrosio (Oil)

Location: Northeastern shore of Lake Maracaibo; District of Bolivar, State of Zulia; (Ambrosio is an extension of La Rosa field); 22 kilometers, approximately, southeast of Maracaibo. See also La Rosa field. **Discovery Data:** Discovery well: Venezuela Gulf Oil Co.'s Rodriguez 2, completed Jan. 13, 1926, at 1476 feet, yielding 24° oil. **Geology:** Anticline. **Producing Formations:** Range from 1500 to 2600 feet and yield asphalt base oil averaging 21.6 gravity oil (Be.). **Extent of Development:** (As of Jan. 1, 1934: 115 wells drilled; 109 producers; 6 failures). No drilling in 1933. **Deepest Hole:** Data not available. **Productive Area:** Proven acreage, 1347 acres (Jan. 1, 1934). **Production History:** 24,834,155 bbls. to Jan. 1, 1934. **Principal Lease Holders:** Lago Pet. Co.; Venezuela Gulf Oil Co.; Venezuelan Oil Concessions, Ltd.; Standard Oil Co. of Venezuela; Compania Espanola de Petroleos.

Bachaquero (Oil)

Location: Northeast shore of Lake Maracaibo, district of Bolivar, State of Zulia, 10 kilometers south of Lagunillas. **Discovery Data:** Venezuela Gulf Oil Co.'s No. 1 Lagunita, completed June, 1930, 3915 feet, 150 barrels daily, 13-18° gravity. **Geology:** Broad monocline. **Producing Formations:** La Rosa series, lower Miocene, at 3900-5325 feet. **Extent of Development:** 3 wells, all oil producers, drilled to June 30, 1934. **Deepest Hole:** Venezuelan Gulf Oil Co.'s No. 1 Lagunilla, 5322 feet. **Productive Area:** Data not available. **Production History:** To 1934, 35,700 barrels. **Present Activity:** None. Shut in. **Principal Lease Holders:** Venezuelan Gulf Oil Co.; Lago Pet. Corp., Venezuelan Oil Concessions, Ltd.

Concepcion (La Concepcion) (Oil)

Location: District of Maracaibo; State of Zulia; western side of Lake Maracaibo; 25 kilometers west of City of Maracaibo. **Discovery Data:** Discovery well was Venezuelan Oil Concessions, Ltd.'s Concepcion 1, completed in 1924 at 3435 feet. **Geology:** Structure trends N 45° E. Is a long, narrow, sharply folded anticline. **Producing Formations:** Concepcion Series of the Eocene. In older section of field production depths range from 1000 to 1750 feet, whereas production in the new section of the field, northeast of the old area, ranges from 2400 to 3560 feet. Crude is paraffin base averaging 35.4 gravity, though some of it runs as high as 38°. Heavier shallow production is mixed base. Average depth 1933 completions, 3540 feet. **Extent of Development:** As of January 1, 1934, 102 wells, of which 101 were producers, had been drilled. **Deepest Hole:** Data not available. **Productive Area:** In 1934 estimated at 603 acres. **Production History:** 13,883,030 bbls. to end of 1933. Later figures not available. **Principal Lease Holder:** Venezuelan Oil Concessions, Ltd.

Cumarebo (Oil)

Location: State of Falcon; northwestern part of the District of Zamora; close to northern shore of Venezuela, on the Caribbean Sea; near the town of Cumarebo. **Discovery Data:** Discovery well was Standard Oil Co. of Venezuela's Cumarebo 1, completed April 14, 1931, at 627 feet for 500 barrels paraffin base oil with gravity estimated at 41 to 45 degrees Beaume. **Geology:** Trend of structure runs N 80 degrees E. Field believed to be the north dome of a greater structure known to exist to the southwest about 28 miles. Cumarebo wells are on a faulted anticline. Major axis 2 miles, north and south; minor axis at right angles, 1 mile wide. **Producing Formations:** Are in Upper Miocene; shallowest, 627 feet; deepest (in 1931) 1864 feet; five sands, non-uniform, known so far, at 550, 700, 1000, 1400 and 1800 feet. Shales between the sands. Average depth of completions in 1933 was 1850 feet. Oil is from 41 to 50° Be. **Extent of Development:** 43 wells, 36 of which were producers, had been drilled. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 360 acres Jan. 1, 1934. **Production History:** 7,037,460 to end of 1933. **Principal Lease Holders:** Standard Oil Co. of Venezuela; North Venezuela Petroleum Company.

El Cubo (Oil)

Location: Colon District, State of Zulia; 80 miles southwest of Lake Maracaibo. Also known as Tarra, which see. Field is really a part of Tarra field. **Discovery Data:** Colon Oil Corporation discovered field. **Producing Formations:** Sands 875-3800 feet; 5 horizons; light oil in middle of First Coal horizon (Lower Miocene); also in El Cubo sands (Oligocene) which are from 300 to 400 feet thick; Mirador sandstone (Eocene) yields showings of oil throughout its thickness of around 1000 feet. Production also in Third Coal horizon (Eocene), below which is Tabla sand (60 to 70 feet thick), a light oil reservoir. Asphaltic base oil 23 to 32° gravity, Be. **Principal Lease Holder:** Colon Oil Corporation.

Guanoco (Oil)

Location: Benitez District; State of Suere; 30 kilometers from mouth of Cano Guanoco, Eastern Venezuela. **Discovery Data:** Field discovered in September, 1913, by Bermudez Company's Bababui 1, which found heavy oil at 615 feet. **Geology:** Anticlinal structure running north 70° east. **Producing Formations:** Fractures in Upper Cretaceous ranging from 500 to 1500 feet in depth. 10.49° A.P.I., asphalt base. **Extent of Development:** 24 wells, 15 of which were producers, had been drilled at end of 1933. Field reported shut in in 1934. **Deepest Hole:** Data not available. **Productive Area:** At end of 1933 estimated at 28 acres. **Production History:** 1,855,805 bbls. to end of 1933. **Principal Lease Holder:** Bermudez Co. **Remarks:** Oldest field in Venezuela.

Hombre Pintado (Oil)

Location: Midway between El Mene and Dabajuro fields; Central Buchivacoa concession; State of Falcon; 18 miles northeast of El Mene. **Discovery Data:** Standard of Venezuela discovered field in 1927. **Geology:** Anticline, structure runs N 70° E. **Producing Formations:** 2165 feet. Average gravity of oil produced in 1933 was 37.7° Be. **Extent of Development:** As of Jan. 1, 1934, five wells, of which four were producers, had been drilled. **Deepest Hole:** Data not available. **Productive Area:** Estimated 120 acres in 1934. **Production History:** 153,681 bbls. to end of 1933. **Principal Lease Holder:** Central Area Exploration Co.

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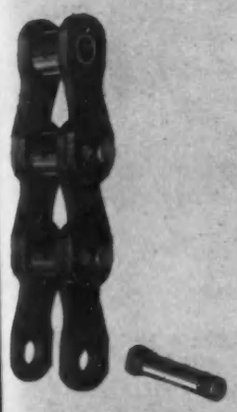

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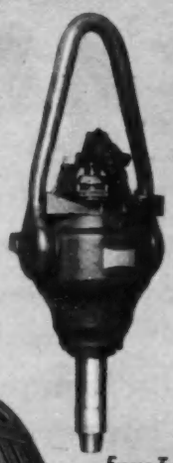

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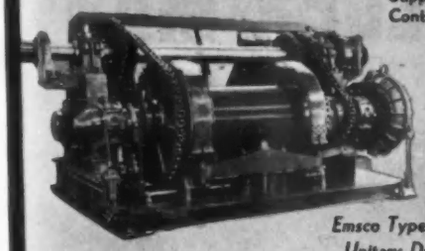

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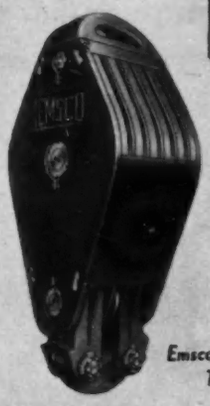

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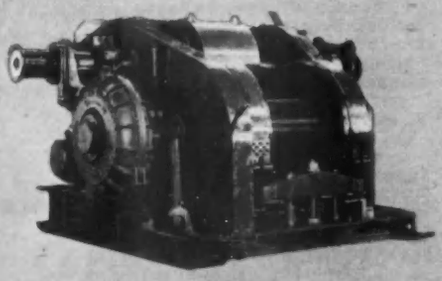

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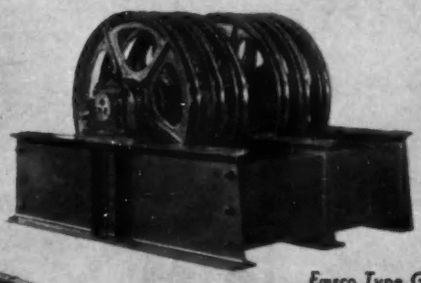

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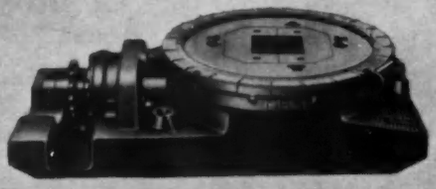

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VENEZUELA—*Continued*

La Paz (Oil)

Location: District of Maracaibo; State of Zulia; 38 kilometers west by north of the City of Maracaibo. **Discovery Data:** Discovery well was Venezuelan Oil Concessions, Ltd.'s Las Flores 1, (later changed to La Paz 1), completed in December, 1922, for an initial production of 5000 barrels, estimated. **Geology:** Anticlinal structure running N 30° E. **Producing Formations:** Sand is in Third Coal Series of the Eocene. Best well in this sand completed at 1856 feet. Oil is asphalt base, 21.6° Be. gravity. **Extent of Development:** As of Jan. 1, 1934, 35 wells, of which 31 were producers, had been drilled. **Productive Area:** 341 acres in 1934. **Production History:** 2,951,420 bbls. to end of 1933. **Principal Lease Holder:** Venezuelan Oil Concessions, Ltd.

La Rosa (Oil)

Location: Northeastern shore of Lake Maracaibo; District of Bolivar; State of Zulia; south of Punta Benitez; north of Ambrosio field; 38 kilometers southeast City of Maracaibo. **Discovery Data:** Discovery well: Venezuelan Oil Concessions Ltd.'s Los Barrosos 2, completed Dec. 16, 1922, flowing wild. (First small producer, same company's Santa Barbara 1, completed in 1917, not considered discovery well for some reason or other). **Geology:** Large anticline, trends N 20° W. **Producing Formations:** La Rosa and Santa Barbara sands, both Lower Miocene, and separated by from 100 to 150 feet; La Rosa sand runs from 40 to 60 feet in thickness; Santa Barbara from 100 to 150 feet; both encountered at from 1200 to 2800 feet, depending upon structural position. Oil is asphalt base, 21° to 25°; average depth of completions in 1933 was 1680 feet. Average gravity of oil produced in 1933 was 24.34° Be. **Extent of Development:** 842 wells to Jan. 1, 1934; 831 were producers. **Deepest Hole:** No data. **Productive Area:** Estimated at 14,310 acres in 1934. **Production History:** 196,366,801 bbls. to Jan. 1, 1934. **Principal Lease Holders:** Lago Pet. Co.; Venezuelan Gulf Oil Co.; Venezuelan Oil Concessions, Ltd.; Standard Oil Co. of Venezuela; Venezuelan Pet. Co.

Lagunillas (Oil)

Location: Northeastern shore of Lake Maracaibo; District of Bolivar; State of Zulia; 35 kilometers south of La Rosa field; 45 kilometers northwest of San Lorenzo terminal. **Discovery Data:** Discovery well was Venezuela Gulf Oil Co.'s No. 1, completed May 14, 1926. **Geology:** Structure runs north 20 degrees west; believed to be uplift related to folding which produced at La Rosa; surface sands average 200 feet in thickness, followed by a clay sand which is from 200 to 3300 feet thick; under clay is the Lagunillas which averages 1075 feet in thickness and contains a tar sand interval up to 400 feet in thickness. **Producing Formations:** Sand at 4200 feet; La Rosa Sand appears light oil zone in northern end of field at around 3100-3200 feet. This is followed by the Icotea formation, a grey shale with little sand which carries occasionally a little oil; a heavy oil zone is encountered 350 feet (average) below bottom of tar sand referred to above and is followed at a slight interval by a light oil zone about 100 feet thick. El Mene formation is found below the Icotea at around 3200-4500 feet and is in excess of 200 feet in thickness, but is not yet proven commercially worth while. Field yields 16.7 A.P.I. gravity oil, though some of it runs as light as 20 gravity; asphalt base. **Extent of Development:** 655 wells, of which 649 were producers, had been drilled to Jan. 1, 1934. Average depth of completions in 1933 was 3035 feet. **Deepest Hole:** No data. **Productive Area:** 12,815 acres as of Jan. 1, 1934. **Production History:** 430,692,946 bbls. to end of '33. **Principal Lease Holders:** Lago Pet. Co.; Venezuela Gulf Oil Co.; Venezuelan Oil Concessions, Ltd.; Standard Oil Co. of Venezuela.

Las Palmas (Oil)

Location: Eastern section of Buchivacoa concession; State of Falcon; 15 miles inland from Caribbean Coast. **Discovery Data:** Discovery well: First oil well was Standard Oil Co. of Venezuela's No. 1, completed July 28, 1928, 124 barrels daily at 2094 feet, 33° gravity oil. **Geology:** Anticline with axis trending east, northeast, west, southwest. **Producing Formations:** Agua Clara and San Luis formations, Miocene-Oligocene, at depths of 2100 to 2400 feet. Paraffin base oil, around 34° Be. gravity. **Extent of Development:** 13 wells, 7 productive, 3 gas, 3 dry, to Feb. 1, 1935. **Deepest Hole:** Standard Oil Co. of Venezuela's No. 5, depth 5494 feet, later plugged back to 2280 feet. **Productive Area:** About 40 acres as of January 1, 1935. **Production History:** Total to 1934, 165,000 barrels. **Present Activity:** No drilling now. Operations suspended August, 1931. **Principal Lease Holders:** Standard Oil Co. of Venezuela, only operator.

Los Manueles (Oil)

Location: District of Colon; State of Zulia; 85 kilometers inland from Lake Maracaibo; 215 kilometers from City of Maracaibo, 8 miles north of Rio Tarra Field. **Discovery Data:** Discovery well, Colon Oil Corp.'s Los Manueles 1, completed at 3549 feet in January, 1927. **Geology:** On Tarra Anticline. **Producing Formations:** Range from 3250 to 4250 feet. Sand is the Mirador, a lenticular sand in the Third Coal sands of the Eocene. Oil is asphalt base ranging 28 to 30.2°. Average depth of completion in 1933 was 4010 feet. **Extent of Development:** 13 wells, 12 of which were producers, had been drilled to end of 1933. **Deepest Hole:** No data. **Productive Area:** Estimated in January, 1934, at 125 acres. **Production History:** 10,466,630 bbls. to end of 1933. **Principal Lease Holder:** Colon Oil Corporation.

Media (Media Mene) (Oil)

Location: District of Buchivacoa, State of Falcon; 12 miles north by west of El Mene field, but on a different structure; 45 miles due east of Maracaibo. **Discovery Data:** Geological survey led to drilling. Discoverer regards No. 1 well, drilled in 1928 for non-commercial production of 41 Be. oil, as discovery well. First commercial oil was obtained May 1, 1929, when No. 2 was completed for 300 barrels. **Geology:** Structure is faulted monocline with unconformity. In some locations the strata are found to be standing nearly on end. **Producing Formations:** In 1934 main producing horizon was a soft sandstone reservoir rock of Oligocene yielding 41 deg. Be. gravity oil and found at from 3000 to 4000 feet. Prior to 1932, average depth of wells was about 2200 feet; in 1933 average depth was 3825 feet, and average gravity of oil produced was 37.5 deg. Be. **Extent of Development:** Up to June 30, 1934, 28 wells had been drilled; as of December 31, 1933, 22 wells, 13 of which were producers, had been drilled. **Deepest Hole:** British Controlled Oilfields, Ltd.s No. 25, completed in Eocene at 5415 feet. **Productive Area:** 55 acres as of June 30, 1934; field defined on three sides. **Production History:** From discovery to end of 1933 field produced 1,700,000 barrels. Daily average production in June, 1934, was 500 barrels. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Field operated by British Controlled Oilfields, Limited, only.

VENEZUELA—*Continued*

El Mene (Oil)

Location: Western Buchivacoa concession; District of Buchivacoa, State of Falcon; 55 kilometers east of Altagracia and about 40 miles due east of Maracaibo. **Discovery Data:** Oil seepages led to drilling. Discovery well was British Controlled Oilfields, Limited's, El Mene 1, which had small showings of 34.5 gravity Be. oil before drilling as stopped at 720 feet in August, 1920. Fourth well drilled gave first commercial production when completed on the pump for 15 barrels of 32.5 gravity oil at 675 feet. **Geology:** Anticline with concentration of oil at unconformity; structure runs north 70 degrees east, approximately. **Producing Formations:** Main horizon in 1934 was soft sandstone reservoir of Miocene age encountered at 1100 feet and producing 34.5 Be. gravity mixed base oil. The El Mene sand, which is lenticular, is found as deep as 2150 feet in some parts of the field. Paraffin base production in the field was regarded as fully exploited in 1927. **Extent of Development:** 283 wells, 227 of which were producers, had been drilled up to June 30, 1934. **Deepest Hole:** British Controlled Oilfields, Limited's No. 253, stopped drilling in Eocene at 6598 feet. **Productive Area:** Estimated June 30, 1934, at 1400 acres. Productive area defined on three sides. **Production History:** Cumulative total to end of 1933, 18,677,250 bbls.; daily average production in June, 1934, was 2100 bbls. of 34.5 degrees Be. gravity oil. **Present Activity:** None in August, 1934. **Principal Lease Holder:** Entirely owned and operated by British Controlled Oilfields, Ltd.

El Mene de Acosta (Oil)

Location: District of Acosta, State of Falcon; 35 kilometers west of Caribbean Sea coastline. **Discovery Data:** North Venezuela Petroleum Co.'s (Tocuyo Oilfields, Ltd.'s) No. 2, discovered the field in April, 1927, when completed at 2520 feet. **Geology:** Field is within sedimentary foreline of the crystalline and metamorphosed Caribbean range. The axial plunge is toward the sea, or to the east. Structure runs east and west. **Producing Formations:** In the El Mene Series, average depth of completions in 1933 was 1315 feet. Field produces oil ranging in gravity from 41° to 50° Be. **Extent of Development:** 80 wells, 40 of which were producers, drilled to end of 1933. **Deepest Hole:** No data. **Productive Area:** Estimated at 163 acres as of January 1, 1934. **Production History:** 773,490 bbls. to end of 1933. **Principal Lease Holder:** Tocuyo Oilfields, Ltd. (North Venezuela Petroleum Co.)

Mene Grande (Oil)

Location: Northern part of the District of Sucre, State of Zulia; east of Lake Maracaibo; 10 kilometers from San Lorenzo refinery and terminal. **Discovery Data:** Discovery well was Caribbean Petroleum Company's M. G. Zumaque Parcel 1, completed as a commercial producer July 25, 1914, at 443 feet. Initial pumping production 250 bbls. 16° A.P.I., younger Tertiary series. **Geology:** Structure runs approximately north 20 degrees west. Field is on south extension of Misoa nose, a structural and topographic high that forks from the Serrania de Trujillo southwards through El Menito, Mene Grande and Los Barrosos. **Producing Formations:** Two: Sands in the Maracaibo Series of the Miocene, a series averaging 1200 feet in thickness and consisting largely of mottled clays; productive sand within the series averages about 400 feet and produces the heavy oil of the field, 17.5 A.P.I. gravity. Series just above Pauji shale. Second sand is the Misoa-Trujillo producing lighter oil in greater quantities. Misoa-Trujillo (Eocene) is under Pauji shale (which is 3000 to 4000 feet thick) and consists of hard shale and very hard quartzitic sand rock. Produces 27 gravity oil. Wells completed at from 1100 to 4000 feet. All production is asphalt base. **Extent of Development:** As of Januar 1, 1934, 241 wells had been drilled, of which 227 were producers. **Deepest Hole:** Caribbean Petroleum Co.'s M. G. 105 Zumbilin Parcel, completed July 30, 1917, depth 4240 feet, initial production 325 bbls. 20.5° A.P.I. gravity oil. **Productive Area:** 4800 acres as of June 1, 1934. **Production History:** 127,685,632 bbls. to end of 1933. **Principal Lease Holder:** Caribbean Petroleum Co.

Misoa (Oil)

Location: Dist. of Sucre; State of Zulia; 8 kilometers north of Mene Grande field. **Discovery Data:** Field discovered in 1917 by Caribbean Petroleum Co. **Production History:** Believed exhausted in 1931. While producing, its oil was included with Mene Grande production. In 1922-25, inclusive, production of Lago, British Equitorial, and Standard of Venezuela amounted to 94,159 bbls. **Principal Lease Holders:** Caribbean Petroleum Co.; Lago Petroleum Corp.; Standard of Venezuela.

Netick (Oil)

Location: District of Mara; State of Zulia. **Discovery Data:** Orinoco Oil Co.'s No. 1, completed September, 1928, 375 barrels daily at 5757 feet, 27° gravity oil. **Geology:** Anticline. **Producing Formations:** Eocene. **Extent of Development:** Only two wells, both productive, drilled up to February 1, 1935. **Deepest Hole:** Orinoco Oil Co.'s No. 2, depth 6643 feet, plugged back to 6220 as an oil well. **Productive Area:** About 20 acres as of Feb. 1, 1935. **Production History:** 47,000 barrels to 1934. **Present Activity:** No drilling in 1934 or 1935. **Principal Lease Holders:** Orinoco Oil Co. (Pure Oil).

Pedernales (Oil)

Location: Federal Territory; Delta of Amacuro. **Discovery Data:** Standard Oil Co. of Venezuela's Pedernales No. 2, completed September 2, 1933, at 1571 feet. No data on initial production. **Geology:** Data not available. **Producing Formations:** Cruze formation. **Extent of Development:** Four wells drilled: One oil well, 3 dry, as of February 1, 1935. **Deepest Hole:** Standard Oil Co. of Venezuela's Pedernales No. 4, depth 3700 feet. **Productive Area:** Only one well productive. **Production History:** No commercial production. **Present Activity:** Well abandoned early in 1935; no new drilling. **Principal Lease Holders:** Standard Oil Co. of Venezuela; Venezuelan Seaboard Oil Co.

Punta Benitez (Oil)

Location: Northeastern shore of Lake Maracaibo; Dist. of Bolivar; state of Zulia; north of Lagunillas field; south of La Rosa. **Discovery Data:** Discovery well: Unity Petroleum Corp.'s Unity 1, completed as producer August 27, 1926, at 2431 feet.(Later turned over to Lago.) **Geology:** Anticline. **Producing Formations:** Range from 2400 to 2800 feet in La Rosa and Santa Barbara sands, which produce oil that averages about 22.5 gravity, A.P.I., though some of it runs high 28°. All oil asphalt base. **Extent of Development:** 47 wells, of which 43 were producers, drilled to January 1, 1934. **Deepest Hole:** No data. **Productive Area:** 1250 acres, (2 3/5 kilo long as of January 1, 1934). **Production History:** 3,712,068 bbls. to end of 1933. **Principal Lease Holders:** Lago Petroleum Co.; Venezuela Gulf Oil Co.

VENEZUELA—*Continued*

Quirequire (Oil)

Location: State of Managas; 25 miles southwest of Bermudez Asphalt lake; Dist. of Piar; Eastern Venezuela, near city of Maturin. Field sometimes designated as Maturin. **Discovery Data:** Discovery well was Standard Oil Co. of Venezuela's Monat 1, completed as a small producer at 2345 feet in 1923. (Later worked over at 1190 feet for 25 barrels). **Geology:** Structure trends N 70°E., the formation being the Younger Tertiary. **Producing Formations:** Sands 1500-3000 feet; Llanos formation at 2000 feet; oil asphalt base, 16° A.P.I. Average depth of completions in 1933 was 2780 feet. **Extent of Development:** 64 wells, 57 of which were producers, drilled to end of 1933. **Deepest Hole:** No data. **Productive Area:** 2210 acres as of January 1, 1934. 3 kilometers long (E&W), and 2 kilometers wide. **Production History:** 16,096,650 bbls. to end of 1933. **Principal Lease Holder:** Standard Oil Co. of Venezuela.

Rio de Oro (Oil)

Location: Dist. of Colon, State of Zulia; southwestern side of Lake Maracaibo and close to the Colombian border; on north side of the river; 70 kilometers northwest of Tarra field. **Discovery Data:** Discovery well was Colon Development Company's No. 2, completed in September, 1915. **Geology:** No data. **Producing Formations:** One sand is in the Third Coal Series of the Eocene, found at about 2275 feet. It produces 30.2 gravity asphalt base oil. **Extent of Development:** 4 wells, 2 of which were producers, had been drilled up to January 1, 1934. **Deepest Hole:** No data. **Productive Area:** 20 acres as of January 1, 1934. **Production History:** No data. **Principal Lease Holder:** Colon Oil Corporation (subsidiary of Royal-Dutch shell.)

Tarra (Oil)

Location: Southern part of the Colon District, 8 miles southwest Lake Maracaibo field; State of Zulia; 215 kilometers from Maracaibo, 8 miles south of Los Manueles field. Field also known as "Rio Tarra," "Tabla," and "Colon." **Discovery Data:** Discovery well was Colon Development Co.'s Toldo 1, completed August 27, 1916, at 875 feet. **Geology:** Field is on the Tarra anticline, the steeper flank of which is to the east. Anticline trends from N 10° E to N 15° E. **Producing Formations:** 850 to 4252 feet. The main producing sands is the Mirador, a lenticular sand in the Third Coal sands of the Eocene. Average depths of sand range from 850 to 3500 feet. Oil is asphalt base ranging from 22.6° to 30.2°. Average depth of completions in 1933 was 3180 feet. **Extent of Development:** As of January 1, 1934, 78 wells, of which 65 were producers, had been drilled. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 869 acres January 1, 1934. **Production History:** 16,713,660 to end of 1933. **Principal Lease Holder:** Colon Oil Corporation.

Tia Juana (Oil)

Location: Northeast shore of Lake Maracaibo. District of Bolivar, State of Zulia; 8 kilometers south of Punta Benitez. **Discovery Data:** Lago Petroleum Corporation's Tia Juana 1, completed March 10, 1928, at 2480 feet, 1200 barrels daily, 16-18° gravity oil. **Geology:** Broad monocline. **Producing Formations:** La Rosa series, lower Miocene, average depths of wells 2700 feet. **Extent of Development:** 12 wells: 11 producers, one dry, as of February 1, 1935. **Deepest Hole:** Lago Petroleum Corporation's No. 208, depth 3500 feet. **Productive Area:** Not defined. **Production History:** To 1934, 27,700 barrels. **Present Activity:** Shut in; no drilling. **Principal Lease Holders:** Lago Petroleum Corporation, Venezuelan Gulf Oil Corporation, Venezuelan Oil Concessions, Ltd. (Royal Dutch.)

Totumo (Oil)

Location: 55 miles southwest of Maracaibo and near Rio Palmar; District of Perifa, State of Zulia. **Discovery Data:** Seepages. Discovery well was Caribbean Petroleum Co.'s Zambopalo 2, completed in June, 1915, for 400 barrels at 1227 feet. (Name of Zambopala wells later changed to Rio Palmar.) **Geology:** No data. **Producing Formations:** 1100 to 2800 feet. No true sands above 2800 feet. Production from fissures in hard igneous and metamorphic rocks; rocks are immediately under soft Miocene clays; 10 to 23 gravity oil. **Extent of Development:** 12 wells, 10 of which were producers, drilled to end of 1933. **Deepest Hole:** No data. **Productive Area:** Estimated at 683 acres January 1, 1933. **Production History:** 141,640 bbls. to end of 1933. **Present Activity:** No data, but both cable and rotary rigs are used. **Principal Lease Holder:** Standard Oil Co. of Venezuela.

Urumaco (Oil)

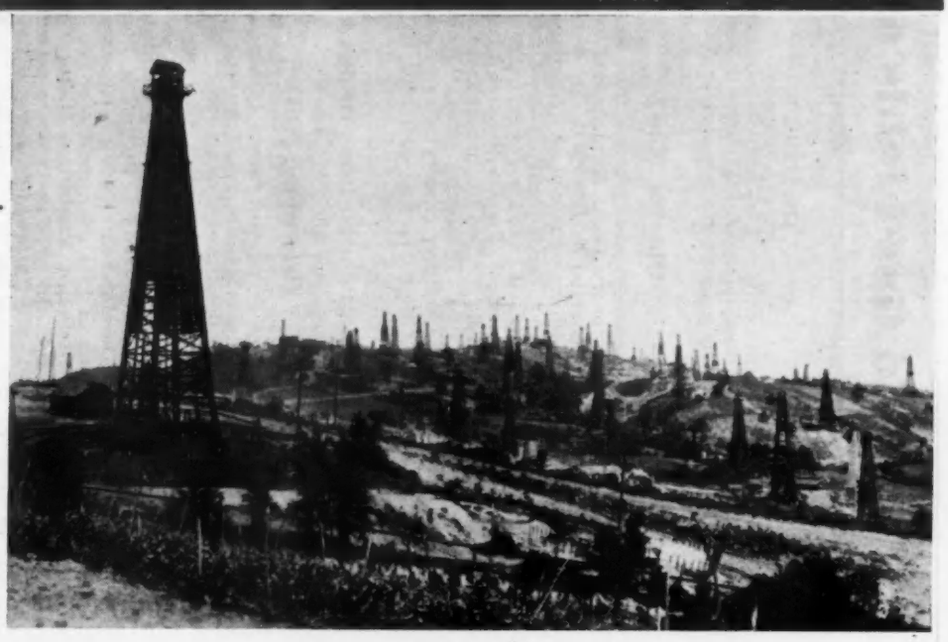
Location: Democracia Dist. State of Falcon; 5 miles from town of Urumaco; 12 miles from northeastern shore of Gulf of Venezuela; 110 miles northeast of Maracaibo. **Discovery Data:** Discovery well was Richmond Petroleum Company's El Mamon 1-A, a large gas well, completed in August, 1926. The second well drilled got production of oil in January, 1928, at 3471 feet. **Geology:** Structure runs north 20 degrees west. **Producing Formations:** 3500 feet; oil produced from Basal Damsite of Upper Miocene. Miocene beds are uplifted through younger sediments. Sand yields paraffin base crude of 34 degrees Baume gravity. **Extent of Development:** Seven wells, including 3 failures, had been drilled to end of 1933. **Deepest Hole:** Richmond Petroleum Co.'s No. 1, depth 6194 feet. **Productive Area:** Estimated at 15 acres January 1, 1934. **Production History:** 205,070 bbls. to end of 1933. **Principal Lease Holder:** Richmond Petroleum Co.

While considerable of the foregoing data on Venezuela came from papers previously published in The OIL WEEKLY, it is a pleasure to extend thanks to C. Dalley of River Plate House, London, to British Controlled Oilfields, Ltd., and to Caribbean Petroleum Company.
For references, use was made of C. C. McDermond's "Who's Who In Venezuela."

WORLD OIL SURVEY

Europe and Africa

This Roumanian test was drilled to 11,092 feet. It is the deepest drilled hole outside the United States, where only three tests exceed it in depth.



Ceptura Field, Roumania, which is one of the leading European oil fields.

Oil and Gas Fields of Europe . . . Austria and Czechoslovakia

Austria

In 1934 five tests were completed in Austria, aggregating combined depth of almost 1800 meters. At beginning of 1935, activity included four tests drilling and one rigging up. Nearly a dozen tests in Lower Austria were in prospect for 1935.

Oberlaa (Gas)

Location: Province of Lower Austria, Borough of Oberlaa, ¼ mile from the city limits of Vienna. **Discovery Data:** Area studied by torsion balance and by structure drilling. Gas discovered by European Gas & Electric Company in 1932, at a depth of 266 meters with a production of 2½ million cubic feet at a pressure of 38 atmospheres. **Geology:** Faulted anticline, accumulation anticlinal against fault. **Producing Formations:** Gas sand is conglomeratic, quite hard, and of Miocene age. **Extent of Development:** 2 gas wells and 5 failures in the area to June 30, 1934. **Deepest Hole:** Süd 7, drilled by European Gas & Electric Company to 478 meters, abandoned in 1933. **Productive Area:** About 1 km. but exact definition of field not known. **Production History:** Gas production in June, 1934, was about 2 million cu. ft. per day. Having completed its 6-kilometer gas line in May, 1934, the European Gas & Electric Company had sold by the end of 1934 to the Vienna City Electric Works 12,301,550 cubic meters of gas. **Present Activity:** None in August, 1934. **Principal Lease Holder:** European Gas & Electric Company.

Zistersdorf (Oil)

Location: Near the town of Zistersdorf, north of Vienna. **Discovery Data:** Discovery well was Raky-Danubia's Gosting 1, completed late in 1932 in formation identified as the Flysch, in the Upper Cretaceous or lower Eocene. Second well was Erdolproduktions-Gesellschaft, m.b.H.'s Gosting 2, completed August 22, 1934, at 2000 plus feet for an initial daily production of 170 barrels, with pumps set at 1830 feet; the producing formation being identified as Sarmatic. **Geology:** Data not available for this compilation. **Producing Formation:** See "Discovery Data" above. **Extent of Development:** Only the above two wells had been completed up to the beginning of 1935. **Deepest Hole:** See "Discovery Data" above. **Productive Area:** Not determined. **Production History:** From completion to end of 1933, the discovery well had produced approximately 7000 barrels of heavy oil, which was also marketed. The second well, Gosting 2, from its completion August 22, 1934, to November 18, 1934, produced 15,600 barrels of oil. At the end of 1934 the Gosting 2 was reported still producing about three cisterns (of 10,000 kg. each) daily. (Total production of Austria during 1934 was reported as being about 430 cisterns, or 10,000 kg. each, the oil being 0.9428 specific gravity. Presumably, that was all from the Zisterdorf area). **Present Activity:** Three (rotary) wells planned for 1935. **Principal Lease Holders:** See "Discovery Data" above.

Czechoslovakia

Methan Plynove Doly Vacenovice (Gas)

Location: 6 kilometers from Kyjov, Moravia. **Discovery Data:** Eruption of 9 atmospheres pressure in Vacenovice in 1929. Gas struck in Lower Eocene in 1930 at 280 meters, pressure of well being 19 atmospheres. **Geology:** No data available in July, 1934. **Producing Formations:** Oligocene sand found at 300 meters. **Extent of Development:** Through June 30, 1934: 3 producers and 1 failure. **Deepest Hole:** 400 meters; a producer drilled by Methan, Spolecnost pro tezbu plynu. **Productive Area:** Estimated in June, 1934, at ½ square kilometer. **Production History:** Since 1931 the field's annual production has amounted to from 30,000 to 40,000 cubic meters. Production is controlled. Present potential is 400,000 cubic meters per year. **Present Activity:** No data available. **Principal Lease Holders:** Methan Spolecnost pro tezbu Plynu.

Naftove Doly "Apollo" v Hodonin (Oil and Gas)

Location: Two kilometers southeast from Hodonin, Moravia. **Discovery Data:** Gas seepage observed in 1923. First production, 65 quintals a month, came from fifth test drilled and completed at 260 meters. Well drilled by Apollo Rafinerie Mineralnich Oleju, akc. spol. **Geology:** Not a salt dome; other data not available. **Producing Formations:** Three Miocene and 1 Oligocene sand. Average depth of well: 260 meters. Specific gravity of oil: 0.92 to 0.95; naphtha contains about 10 per cent gasoline. **Extent of Development:** Data not available in July, 1934. **Deepest Hole:** 546 meters, drilled by Apollo Rafinerie Mineralnich Oleju. **Productive Area:** Estimated in July, 1934, at approximately three square kilometers. **Production History:** In 1925 field produced 160,000 quintals; in 1933 field produced 100,000 quintals; indicated increase in production for 1934. Production in first four months of 1934 was 2,200 metric tons. In 1934, field produced about 1300 cisterns of 10,000 kg. each of 0.91 specific gravity oil, and a small amount of gas for fuel. Cumulative production 1920-1933 was 610,602 barrels, including 45,360 barrels in 1933. **Present Activity:** No data available. **Principal Lease Holders:** Apollo Rafinerie Mineralnich Oleju, ack. spol.

Naftove Doly v Mikove (Oil and Gas)

Location: Six kilometers northwest of Medzilaborce, Slovakia. **Discovery Data:** Gas seepage caused first drilling; government drilled well to obtain monthly production of 20 to 30 quintals of light oil. Other data not available in July, 1934. **Geology:** Only information available is that the field is near chalk formations exposed at the surface. **Producing Formations:** Eocene sandstone at 350 meters. **Extent of Development:** Up to June 30, 1934, only one test had been drilled. It produced 20 to 30 quintals per month, light oil. **Deepest Hole:** 350 meters; see discovery data. **Productive Area:** Not sufficient data available to calculate productive area in July, 1934. **Production History:** Data not available. **Present Activity:** Data not available. **Principal Lease Holders:** Czechoslovak Republic, field controlled by Ministry of Public Works.

Statni Naftove Doly v Kbelich (Oil and Gas)

Location: In Kbely, Slovakia, about 10 kilometers southeast of Hodonin. Note: Americanized spelling of Kbely is "Gbely." **Discovery Data:** Gas seepage observed in 1913. Geophysical work done by Geologist Boeckh of Hungarian State Geological Institute in same year. Naphtha discovered when drilling for gas January 1, 1914. Depth of well: 240 meters. Gravity of oil: 0.92. **Geology:** Not a salt dome; other data not available in July, 1934. **Producing Formations:** Three Miocene sands and one Oligocene sand (10 to 15 meters thick) at 240 to 260 meters. New producing formation at 145 meters depth. Specific gravity of oil, 0.92; no gasoline in naphtha. **Extent of Development:** Up to June 30, 1934, there were 340 completions. Of these 170 were producers and 170 were failures. **Deepest Hole:** Government's H6, abandoned as a dry hole in 1933; depth: 1564 meters. **Productive Area:** Estimated in July, 1934, at four kilometers square, inclusive of both old and new fields. **Production History:** Total from 1914 through 1933: 1,789,532 quintals of oil; in barrels, the cumulative production 1914-1933, was 1,-

Oil and Gas Fields of Europe . . . England and Estonia

CZECHOSLOVAKIA—*Continued*

169,105 barrels, including 74,250 barrels in 1933; gas produced from 1921 to 1933: 6,536,000 cubic meters. In 1934 output was 1238 cisterns of 10,000 kg. of 0.935 specific gravity oil, and a small amount of gas, used as fuel. Natural gas is used by the state railroad. "Trade Notes," June 15, 1934, says annual yield prorated now at about 1200 cars. **Present Activity:** No data available. **Principal Lease Holders:** Field owned by Czechoslovak Republic and controlled by the Ministry of Public Works.

Data presented on the four fields of Czechoslovakia were prepared for publication in The OIL WEEKLY by Frank C. Lee of Prague, Czechoslovakia, to whom thanks are extended.

England

D'Arcy (Prospect)

Location: In Midlothian, Scotland; sometimes referred to as "Midlothian." **Discovery Data:** A well drilled produced 50 barrels highly paraffinous oil from sandstone at 1820 feet. Well later abandoned. **Geology:** Not available as of September, 1934.

Derbyshire Miscellaneous (Prospects)

Discovery Data: Two wells drilled in 1920 on domes south of Hardstoft started in coal measures, penetrated Millstone grits without gas shows, had small oil shows in top of limestone, and also some gas shows. Three tests on separate structures north of Hardstoft had good gas shows in Millstone grits in 1920.

Hardstoft (Oil)

Location: In Derbyshire. **Discovery Data:** Hardstoft No. 1, encountered oil at 3078 feet in May, 1919, and yielded seven barrels per day. Well drilled by H. M. government. **Geology:** Faulted dome. Coal measures at surface. **Producing Formations:** Oil at top of Limestone at 3078 ft.; gas shallower, in Millstone grits. **Extent of Development:** Three completions, including one producer and two failures, drilled to June 30, 1934. **Deepest Hole:** Discovery well. **Productive Area:** Undetermined. **Production History:** Discovery well had yielded 20,000 barrels up to July 31, 1934. Output was 125 tons in 1922; 136 tons in 1923. **Present Activity:** None in August, 1934. **Principal Lease Holders:** No data. **Remarks:** Oil here rich in lubricants.

Weald (Gas)

Location: In Sussex. **Discovery Data:** Gas found in water wells in 1893. In 1896 shallow wells dug for gas, and small production therefrom used locally ever since. **Geology:** No data available. **Producing Formations:** Gas comes from Purbeck beds at top of the Jurassic. **Extent of Development:** No data available. **Deepest Hole:** No data available. **Productive Area:** Undetermined. **Production History:** Gas production has always been negligible. **Present Activity:** None in August, 1934.

Worth (Prospect)

Location: Near Crawley, at Worth, Sussex. **Discovery Data:** In 1934, N. M. D. Syndicate was drilling a test which at 1886 feet had found no showings worthy of a production test. **Geology:** Anticline. **Producing Formations:** Production was expected in the Portland sands at about 1970 feet. It is understood the well stopped drilling before reaching these sands.

For the foregoing data on fields and prospects on England, The OIL WEEKLY is indebted to the director of H. M. Government's mines department and to George Sell of London.

Estonia

Eesti Kivioli A.-U. (Oil Shale)

Location: Estland (Estonia) County: Rakvere County Seat: Erra. Distance from Tallinn, 138 Kilometers; from Rakvere, 34 Kilometers; from Navra, 72 Kilometers. **Discovery Data:** The first oil shale news dates back to the year 1725. The first development started by the Russian Government in the year 1916 at Jarwe and Kukruse. The purpose was to produce hard burning material. The first experience to extract oil from oil shale started in 1919. **Geology:** Oil shale deposits belong to the Kuckersit—(Stufe of Estlandischen Ordovizium.) The deposits have been comparatively undisturbed. The strata runs north and south and the north end being close to the railroad line of Narva-Taps. On the west the producing layers are limited to Rakvere. **Producing Formations:** Productive deposits are those belonging to the Kuckersit-Stufe. The productive layers of oil shale measures from two to four meters. The shale consists of six layers with lime deposits between each layer. This deposit belongs to the Untersilur (Ordovizium) category. The strata lays about 5 meters deep break or fall with approximately 3 meters per klm from north to south. Oil obtained from this shale has an average specific weight of 0.940 at 15° C. The contents of oil figured on dry shale average 23 to 25 percent. **Extent of Development:** Drilling of oil or gas wells has never been tried. **Production History:** The Estn. Steinöl Co., Inc., established in 1922, until 1928 was experimental. Total oil produced after installing the experimental Ovens at the end of 1933: 61,023 tons. The production from January 1, 1934, to April 30, 1934, was 12,600 tons of oil. **Present Activity:** At present two ovens are used in production, averaging from 450 to 500 tons raw material daily and oil production of 90 to 100 tons. There is also an oil refinery producing daily 15 tons of clear benzin. **Principal Lease Holder:** Estinsche Steinöl, A. G.

Kukersite (Oil Shale)

Location: Estonia, Virumaa, Kohtla-Järve, 70 kilometers from each of the towns Narva and Rakvere. **Discovery Data:** First observation of the Estonian shale made by Georgi at 1791, the next are those of Helmersen 1838, F. Schmidt 1857; A. Shamarin 1870; Fokin 1913 etc. **Geology:** Kukruse Stage occurs in the Ordovician limestones. The productive seams are nominated by letters A, B, C, D, E, F etc. Their thickness is of 0.25 to 0.50 meter each. All seams are interposed by limestone strata. The total height of the productive deposit is 2.5-3 meters. **Producing Formations:** The kukersite stage belongs to Ordovician. On the outcrops the shales lie only some feet below the earth's surface. **Productive Area:** The concession's area is about 15 by 40 kilometers. **Production History:** First successfully working oil recovery plant was set in work in 1921 at Kohtla-Järve. The present daily average production at Kohtla-Järve is 30-35 tons of crude oil, the gravity of the oil being 0.98 at 20°C. **Present Activity:** In addition to the crude oil production there are a cracking plant and an asphalt blowing plant in work at Kohtla-Järve. A number of different oils are produced, beginning with the light motor fuels and ending with the heavy blown asphalts. The oil shale mine delivers yearly 200,000 tons of shale for heating purposes. **Principal Lease Holder:** The enterprise belongs to the Estonian State. (State Oil Shale Industry).

STREAMLINE

CHRISTMAS-TREES

the first major advancement in design in years

FIG. 1

On Display HOUSTON OIL SHOW April 8-13

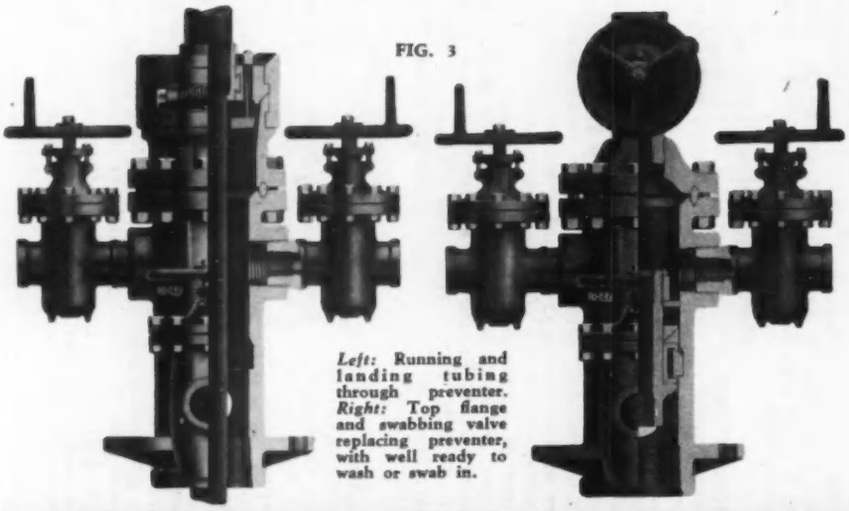
FIG. 2

The leader in Christmas-tree manufacture again steps ahead of the field with these compact, streamline, free-flow hook-ups, providing 75% greater strength, a vast reduction in parts and space required, and considerably less weight.

It's so small you can almost step over it. It requires no tie-rods nor clamps. It does not have a single nipple. Male thread valves screw into tubing head, the 2″ valve having a 4″ O.D. male thread instead of conventional 2″ I.D. thread. And, since there are no nipples to reduce the area, you can swab 2½″ tubing through a 2½″ valve.

The first reduction in flow-line area comes at the flow-line cross, where the male thread screws into the female thread of the valve, which effects back pressure on flow-line valves, minimizing cutting action on valve parts.

FIG. 3



Left: Running and landing tubing through preventer. *Right:* Top flange and swabbing valve replacing preventer, with well ready to wash or swab in.

O-C-T STREAMLINE Christmas-trees are furnished in two types, Fig. 1, built around Type "AS" tubing head to permit, for the first time, installation of the complete tree before drilling in . . . and Fig. 2, giving full streamline effect yet not departing from previous handling methods. The numerous advantages offered in Type "AS" tubing head are shown in Fig. 3.

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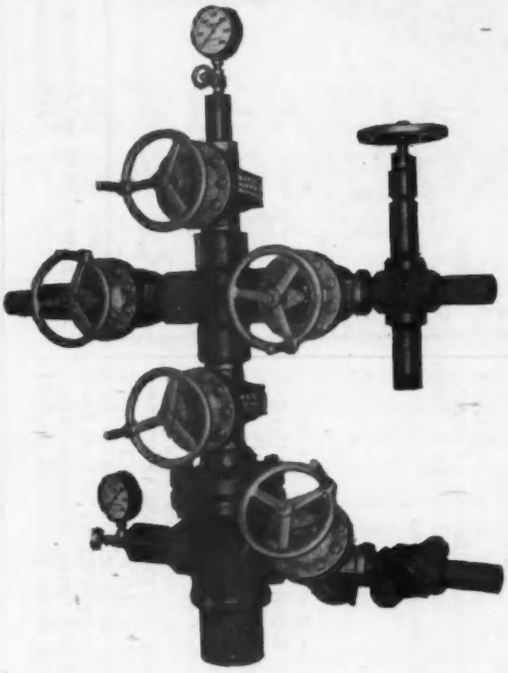
is now furnished with male thread for your Streamline Christmas-trees.

See our Exhibit April 8-13, at the HOUSTON OIL SHOW



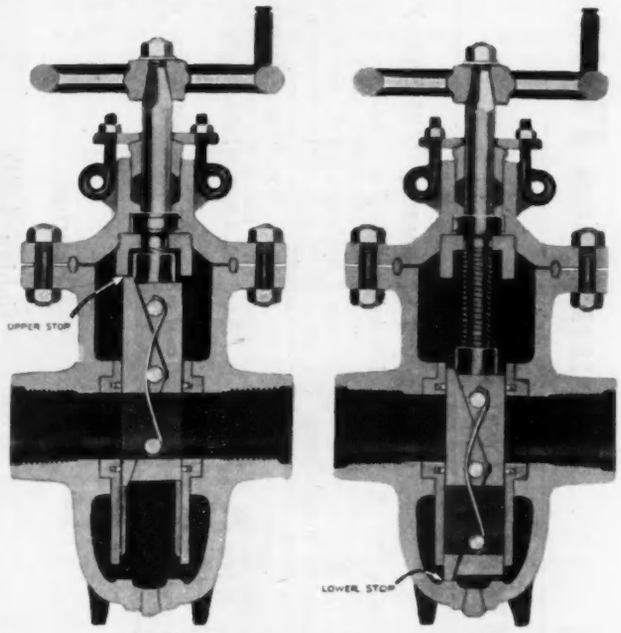
This long life valve opened a new era in oil tool history with its smooth flow-way, easy operation and its complete protection to parts. The major valve problems . . . difficult opening and closing, collection of sediment and scale, cutting out of seats in open position . . . have been entirely eliminated.

A grease filled body, lubricating the gate and segment at each operation, positively prevents internal corrosion and guarantees easy opening and closing.

Patented bronze combination wipe-and-seal rings keep the gate and seats clean. Streamline flow-way will not allow sediment and scale to collect.

Parallel expanding gate positively seals on both sides, regardless of pressure against it. Oversize, renewable bronze seats are not exposed in either open or closed position.

Ask for Circular No. 636



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W-K-M Company, Inc.

OIL FIELD, PIPE-LINE & INDUSTRIAL EQUIPMENT

HOUSTON, Texas, U. S. A.

Export Office: 74 Trinity Place, New York

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Oil and Gas Fields of Europe . . . Estonia and France

ESTONIA—*Continued*

Oliver and Ommanney (Oil Shale)

Location: N. E. Estonia, 180 kilometers from Tallinn, on what is known as the Oliver and Ommanney concession. **Discovery Data:** First recorded indication of shale in 1791: outcrops in a drainage canal. **Geology:** Laminated strata. **Producing Formations:** Middle Ordovician, close to surface: 1 to 4 meters; asphalt base. **Extent of Development:** Shale is mined. **Productive Area:** The present concession area is 5,000 hectares. **Production History:** The plant is so far still in the experimental stage and the crude oil production is no greater than 15,000 tons per annum. **Principal Lease Holder:** New Consolidated Gold Fields, Ltd. (Estonian branch).

Information on oil shale mining areas in Estonia was prepared for The OIL WEEKLY by James Henderson of Talinn; Estinsche Steinol, A.G.; the Estonian State Oil Shale Industry; and New Consolidated Gold Fields, Ltd., (Estonian branch).

France

Gabian (Oil)

Location: Near Gabian; 20 miles north of Mediterranean Sea. **Discovery Data:** Seepages ¼ mile south of Gabian noted in 1717. Discovery well spudded August 20, 1924, and found oil at 350 feet on November 6, 1924. During November the well showed 9500 cubic feet of oil, specific gravity of which was 0.8464. **Geology:** Discovery well was located on a Triassic Paleozoic substratum cropping out north and sinking south under more recent stratum. **Producing Formation:** 350 feet; oil contains no light oil products. **Extent of Development:** Though this small field was not discovered until 1924, it was practically exhausted early in 1935. **Productive Area:** Estimated at 30 acres. **Production History:** Cumulative total to end of 1933 was 148,933 barrels. Field produced only 3780 barrels in 1932; practically none in 1933 and 1934. **Present Activity:** None in February, 1935.

Pechelbronn (Oil)

Location: In northern Alsace, north of Hagenu and in the valley of the Rhine River; about 30 miles north of Strasbourg. **Discovery Data:** Oil seepages noted as early as 15th Century; mining (by tunnels) started in 1735; first shaft sunk in 1745; in 1866 shafts sunk to 250 feet. First test well drilled in 1882 flowed light oil from 139 meters. **Geology:** Strata dip is southeast at the rate of 2 to 8 degrees. Accumulation due partly to minor faults more or less parallel to the major fault in the Rhine valley. The field should not be considered as a single unit, but as a succession of small oil fields. **Producing Formations:** Oligocene, Jurassic and Triassic sands. Average completion depth 1279 feet; gravity of oil ranges from 17 to 34.4 A.P.I., mixed base. **Extent of Development:** 42 percent of oil is recovered by means of shafts and galleries; 4000 wells had been completed at end of 1933; during 1933: 56 oil wells and 50 failures. **Deepest Hole:** 3434 feet; zone tested was Lower Triassic. **Productive Area:** Estimated at 7400 acres. **Production History:** 1000 tons produced in 1880; by end of 1924, cumulative total produced from mines was estimated at 170,000 tons; total to end of 1933 was estimated at 12,400,000 barrels; daily average production in November of that year was 1400 barrels. There were 651 wells on production at end of 1933, all on the pump. **Principal Lease Holder:** Mines de Pechelbronn.

Europe

This general map of European oil fields is a section from a copyrighted map of International Map Company, New York.

SERVING THREE GREAT FIELDS

LANE-WELLS GUN PERFORATOR SERVICE

MID-CONTINENT Operators will be interested to know that we have opened offices in Tulsa and Oklahoma City *(see addresses below)*, thus making Lane-Wells Gun Perforator Service available at all points in Oklahoma, Kansas, Arkansas, New Mexico and Northern Texas. . . . Our self-contained truck unit, manned by two experienced "shooters," is ready on a few days' notice to come directly to your well, bringing guns and all equipment necessary to perforate under fluid down to 10,000 feet. . . . You furnish only a hook in the derrick, and two of your men as helpers.

Already a sensational success in the California and Gulf Coast fields, the Lane-Wells Gun Perforator assures you of *positive perforation.* Pointed steel bullets are shot through casings and cement by electrical detonation of gunpowder—*absolute safety guaranteed by 100% surface control.* . . Ten holes in spiral pattern can be shot on each trip down.

You get clean perforations, at any depth you desire (we have shot as deep as 9200 feet), with no damage to casing, and spaced with an accuracy hitherto unheard of, due to scientific control devices. . . . We are on the job and off the job quickly, leaving you with a well restored to profitable production. . . . In other words, *"If the oil's there, we get it!"*

***Patent Protection Assured:* This method of perforating and devices used therewith are fully protected by U.S. Pat. No. 1,582,184, issued Apr. 27, 1926, and other patents pending.**

Write for our "Bulletin No. 3," which gives you the interesting details about Gun Perforator Service. . . . or call any of our offices listed below for further information.

Engineers and Manufacturers — *Tomorrow's Tools—Today!*

THE LANE-WELLS CO.

Packers . . Liner Hangers . . Liner Setting Tools . . Gun Perforator and Magnetic Fishing Services

TULSA, OKLAHOMA	OKLAHOMA CITY	LOS ANGELES, CAL.	HOUSTON, TEXAS	NEW YORK CITY
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Long Distance 789	Long Distance 632	JEfferson 5289		

Oil and Gas Fields of Europe . . . Germany

Germany

General Information

Dr. J. Bryan Eby says the most active foreign companies in Germany in 1935 are the Socony-Vacuum, the Royal Dutch Shell, the North European Oil Corporation (Delaware), Cities Service Company and Anglo-Persian Oil Company.

Vacuum and Shell interests have been particularly active in geophysical and core drill exploration on the north German plain. In recent months Vacuum has taken over large holdings of the North European in Oldenburg and Ostfriesland, carrying a number of gravity dome prospects.

Together with the German companies, Dr. Eby says, these foreign concerns are putting forth every effort to bring in new oil fields and to increase production in the older fields.

Alvesse (Prospect)

Location: Braunschweig province; near town of Braunschweig. **Geology:** Salt dome; top of salt 650 feet. **Producing Formations:** Asphaltic Tertiary sands found in canal dredging; no deep wells.

Aschersleben (Prospect)

Location: Anhalt province; near town of Aschersleben. **Discovery Data:** One of the oldest potash mines in Germany. **Geology:** Salt anticline; top of salt 500 feet.

Asse (Prospect)

Location: Braunschweig province; near Braunschweig. **Geology:** Salt anticline; top of salt 500 feet. **Producing Formations:** Potash mined; not drilled for oil or gas.

Bad Bramstedt (Prospect)

Location: Schleswig-Holstein province; near Neumuenster. **Discovery Data:** Salt water wells, probably in Tertiary formation.

Bahlburg-Pattenson (Prospect)

Location: Hannover province; near Winsen. **Discovery Data:** No exploratory drilling to February, 1935. **Geology:** Salt dome; top of salt, 1200 feet.

Barnstorf-Braunschweig (Prospect)

Location: Braunschweig province; near Braunschweig. **Geology:** Salt anticline; gypsum at surface; salt shallow; no shows of oil or gas.

Bechsbuttel (Prospect)

Location: In Hannover province; near Braunschweig. **Discovery Data:** Torsion balance discovery in 1932. **Geology:** Salt dome; top of 1100 feet. **Producing Formations:** Oil shows in Lower Cretaceous.

Beesenlaublingen (Prospect)

Location: In Anhalt province; near Aschersleben. **Discovery Data:** Potash mined prior to drilling. **Geology:** Salt anticline; top of salt, 500 feet.

Benthe or Ronnenberg (Prospect)

Location: In Hannover province; near Hannover. **Geology:** Salt dome; top of salt, 700 feet. **Producing Formations:** Oil shows and asphalt mining on flanks of dome in Upper Jurassic limestone.

Beienrode or Dorm (Prospect)

Location: In Braunschweig province; near Braunschweig. **Discovery Data:** Potash being produced; no shows of oil or gas yet. **Geology:** Salt dome; top of salt, 700 feet.

Blexen (Prospect)

Location: In Oldenburg province; near Bremerhaven. **Discovery Data:** Slight shows of oil in upper Cretaceous prior to 1934. **Geology:** Salt dome; top of salt, 2400 feet.

Bremen-Delmenhorst (Prospect)

Location: In Bremen province; near Bremen. **Discovery Data:** Indications observed prior to 1933. **Geology:** Salt dome; top of salt, 2400 feet. **Producing Formations:** Slight shows of oil in Upper Cretaceous.

Bruchsal Field (Oil)

Location: In Baden province; near town of Bruchsal; north of Karlsruhe; south of Heidelberg. Within the Rhine graben. **Discovery Data:** Itag Company developed small production from Tertiary sands prior to March 1, 1935, and after March 1, 1934. **Geology:** Similar to that of Pechelbronn, France. **Producing Formations:** Lower and middle Oligocene. **Extent of Development:** 2 wells on production in February, 1935, out of 9 drilled. **Production History:** Small production in 1933; none reported in 1934.

Conow (Prospect)

Location: In Mecklenburg province; near Boizenburg. **Discovery Data:** Abandoned potash mine; not subjected to drilling yet. **Geology:** Salt dome; top of salt, 500 feet.

Cuxhaven (Prospect)

Location: In Hannover province; near Cuxhaven. **Discovery Data:** Three tests found upper Cretaceous high. One well reported oil shows. **Geology:** Tentatively identified as a salt dome.

Dunge or Lesum (Prospect)

Location: In Bremen province; near Bremen. **Discovery Data:** No shows of oil or gas. **Geology:** Salt dome; top of salt, 500 feet.

Ehmen (Prospect)

Location: In Hannover province; near Gifhorn. **Discovery Data:** Oil show on southwest flank of dome reported prior to 1934. **Geology:** Salt dome; top of salt, 500 feet.

Eilte (Prospect)

Location: In Hannover province; near Rethem. **Geology:** Salt dome; top of salt, 750 feet.

Fallersleben (Prospect)

Location: In Hannover; near Fallersleben. **Discovery Data:** Active potash mine in 1934. **Geology:** Salt dome; top of salt, 700 feet.

Flachstoeckheim (Prospect)

Location: In Hannover; near Braunschweig. **Discovery Data:** Small asphaltic deposit in lower Cretaceous observed prior to 1934. **Geology:** Salt dome; top of salt, 700 feet.

250 Catalogs in ONE

Key men of oil companies throughout the entire world have received copies of the 1935 Composite Catalog of Oil Field and Pipe Line Equipment. This new Edition contains approximately 85% more information on oil country equipment than any previous edition.

Its more than 1,000 pages constitute a real library on oil country equipment. Actually it represents the individual catalogs of more than 250 manufacturers.

Picture a file of more than 250 catalogs with a common index to them all, so compact that the entire set of catalogs can be placed in one volume on your desk and you have a picture of the Composite Catalog.

And, remember, these catalogs represent the last word on the equipment described up to and including the 1st of January, 1935.

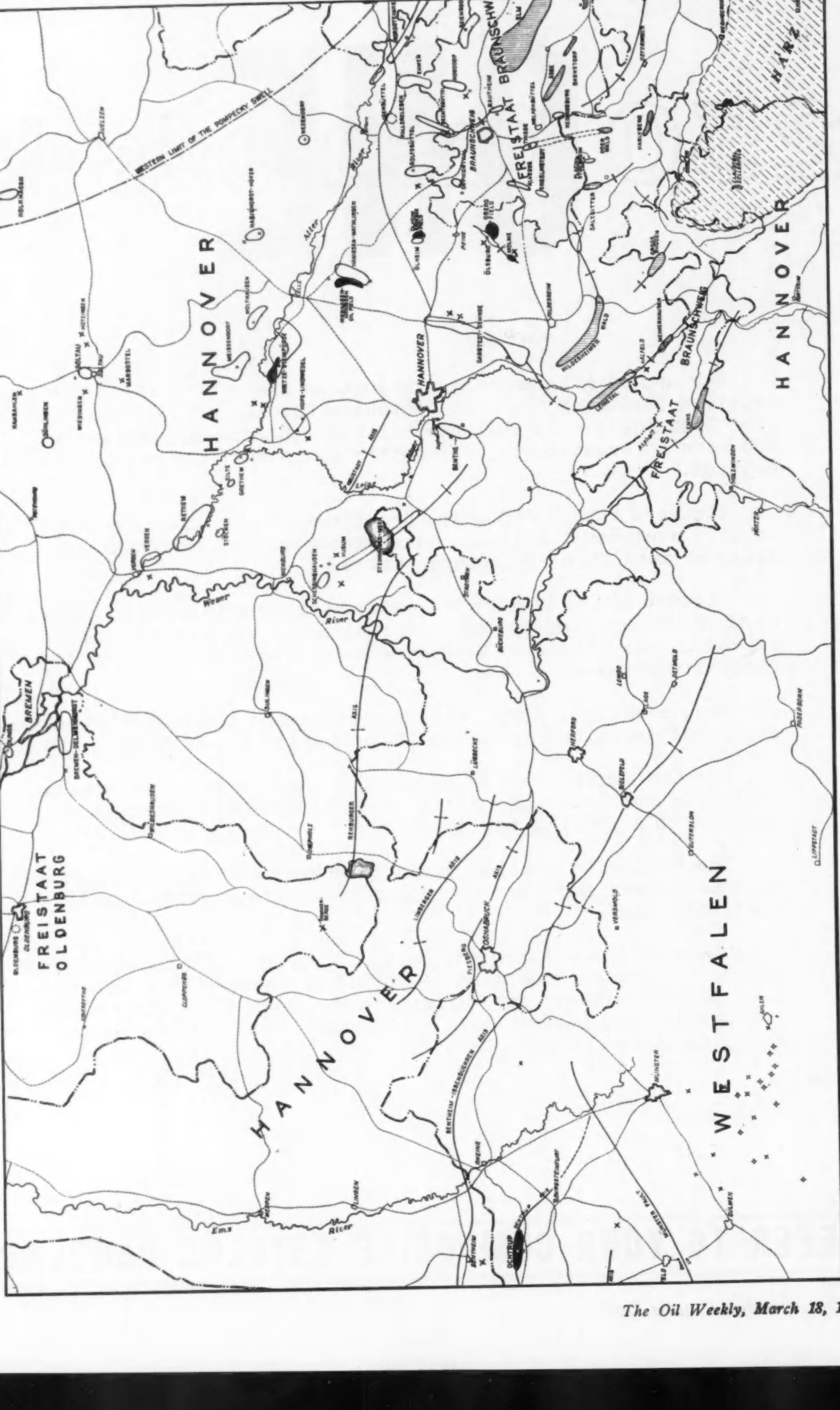
For the convenience of oil men, a uniform style of presentation is followed throughout which reduces the time necessary to check on a piece of equipment.

The Composite Catalog again this year contains the revised and up-to-date American Petroleum Institute standardization specifications.

Users of the Catalog who fail to find in it information they may be seeking on equipment or prices may secure this information quickly without any obligation by simply filling out the postage prepaid postal card in the back of the Catalog and dropping it in the mail.

REFER TO YOUR COMPOSITE CATALOG REGULARLY

Map Showing Part of the Germany Fields



EUROPE—Germany—*Continued*

Gross Rhuden (Prospect)

Location: In Hannover; near Seesen. **Discovery Data:** Potash mined in 1934. **Geology:** Salt anticline; top of salt, 1000 feet.

Guelze (Prospect)

Location: In Mecklenburg province; near Boizenburg. **Discovery Data:** Discovered recently, prior to 1935, by geophysics. **Geology:** Salt dome; top of salt 750 feet.

Grethem (Prospect)

Location: In Hannover province; near Schwarmstedt. **Discovery Data:** Oil shows in lower Cretaceous observed prior to 1934 on southeast flank of dome. **Geology:** Salt dome; top of salt, 1000 feet.

Habighorst or Hofer (Prospect)

Location: In Hannover province; near Celle. **Discovery Data:** Potash mined in 1934. **Geology:** Salt dome; top of salt, 1000 feet.

Hackel (Prospect)

Location: In Sachsen province; near Halberstedt. **Discovery Data:** Oil shows observed prior to 1934 in the potash beds, and 1 well at Hausneindorf showed possibilities of light oil production. **Geology:** Salt anticline; top of salt, 1800 feet.

Hardabek (Prospect)

Location: In Schleswig-Holstein province; near Neumuenster. **Geology:** Prospect with salt water Senonian formation at a shallow depth.

Harlyberg (Prospect)

Location: In Hannover, near Goslar. **Discovery Data:** Potash is mined; Bischoffite, a rare mineral, is formed here. **Geology:** Salt anticline, asymmetric.

Hedwigsberg (Prospect)

Location: In Braunschweig province; near Braunschweig. **Discovery Data:** Dome discovered prior to 1934. **Geology:** Salt dome; top of salt, 700 feet.

Heide or Hemmingstedt (Oil)

Location: In Schleswig-Holstein province, in salt dome region; near Meldorf. **Discovery Data:** Structure discovered in 1860 by asphaltic sands and water wells. **Geology:** Salt dome, or structure; probably horst. Top of salt, 1500 feet. **Production Formations:** Produced some oil from Upper Cretaceous chalk, some of which has been mined by shafting and washing. **Extent of Development:** No drilling in 1934. **Production History:** Small production reported through 1932; none reported in 1933 and 1934.

Helgoland (Prospect)

Location: An island in the North Sea. **Discovery Data:** Undrilled. **Geology:** Structure, probably deep dome, with Bunt sandstone of the Triassic exposed at surface.

Hemmoor (Prospect)

Location: In Hannover province; near Stade. **Geology:** Probably dome structure; Upper Cretaceous and Eocene at surface. Unconfirmed report states that 1 well drilled into salt.

Hildesheimer (Prospect)

Location: In Hannover province; near Hildesheim. **Discovery Data:** Potash is mined. **Geology:** Salt anticline with Lower Bunt sandstone exposed at surface.

Hope or Lindwedel (Prospect)

Location: In Hannover province; near Schwarmstedt. **Discovery Data:** Oil broke into potash shaft in 1912, and produced some 4200 barrels. **Geology:** Salt dome; top of salt, 1000 feet; in some places salt Commanchean with oil shows. **Producing Formations:** Not known whether the above oil was Jurassic or Cretaceous.

Hordorf (Prospect)

Location: In Braunschweig province; near Braunschweig. **Discovery Data:** Oil seeps on southwest flank and some oil produced from pits. **Geology:** Salt dome. **Producing Formation:** Oil is from Lower Dogger formation. **Extent of Development:** Several wells drilled without commercial production.

Husum (Prospect)

Location: In Hannover province; near Nienburg. **Discovery Data:** Some gas found in Lower Cretaceous prior to 1934. **Geology:** Salt dome; top or salt, 325 feet; probable extension of Steinhoder-Meer salt dome.

Huy (Prospect)

Location: Braunchweig province; near Halberstadt. **Geology:** Salt anticline; top of salt 2600 feet.

Isenbuettel (Prospect)

Location: In Hannover province; near Gifhorn. **Discovery Data:** Geophysical prospect prior to 1934. Not drilled yet. **Geology:** Probably dome.

Jaderberg (Prospect)

Location: In Oldenburg province; near Oldenburg. **Discovery Data:** Torsion balance discovery in 1929; several wells drilled; no oil or gas shows. **Geology:** Salt dome; top of salt, 3400 feet.

Jarxheim (Prospect)

Location: In Braunschweig; near Braunschweig. **Discovery Data:** No oil or gas shows up to 1934. **Geology:** Salt anticline; top of salt 700 feet.

Jever (Prospect)

Location: In Oldenburg province; near Jever. **Discovery Data:** Torsion balance discovery in 1931; no drilling. **Geology:** Probably salt dome.

Kalbe (Prospect)

Location: In Sachsen province; near Gardelegen. **Geology:** Salt dome; top of salt, 600 feet; Triassic outcropping; no oil or gas shows.

Klein Kuthren (Prospect)

Location: In Hannover province; near Luneburg. **Geology:** Salt dome; top of salt, 1400 feet. **Producing Formation:** No oil or gas shows up to 1934.

Kolkhagen (Prospect)

Location: In Hannover province; near Luneburg. **Geology:** Salt dome; top of salt, 350 feet. **Producing Formations:** No oil or gas shows up to 1934; potash is mined.

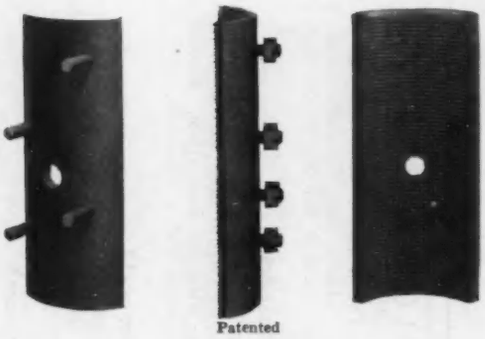
Langenfelde (Prospect)

Location: In Schleswig-Holstein province; near Hamburg. **Geology:** Salt dome or horst; cap rock at 75 feet; Permian near surface covered only by alluvium. **Producing Formations:** No oil or gas shows.

MOST COMPLETE LINE OF

Patented

Figure 202
T-I-W FRICTION SLIPS — Regular Three Piece Reliner Type. 13¼" bearing surface against pipe.



Patented

Figure 204
Showing Knurled Replaceable Liners for Reliner Type Slip.

Figure 201
T-I-W FRICTION SLIPS—Extra Long, Reliner Type with Adapter which makes 62 per cent added length possible, giving 20-inch bearing surface against pipe. Due to smaller diameter of slip housing, made possible by use of Adapter, slips are only six pounds heavier than ordinary slips.

Patented

T-I-W FRICTION THREE-PIECE RELINER TYPE SLIPS

are a three-piece unit type slip which keeps the segments in perfect alignment and obviates one segment getting out of alignment and crushing pipe.

THE THREE SEGMENTS make a three-point bearing on the circumference of the rotary bowl, making same self-centering and giving a uniform bearing area on the pipe. The slips have a bearing area against the pipe of 13¼" lengthwise and almost 100% of the circumference.

THE HANDLES are convenient to grip and are long enough to clear elevators, and curved to clear top of rotary, eliminating any danger of injury to operator's hands.

THE THREE PIECE SLIP IS VERY EASY TO HANDLE. First, when putting in slips in rotary, the slip is clamped around the pipe where it is loosely held by pressing handles together until pipe is lowered, setting slips in rotary bowl. Second, when taking slips out of rotary bowl, a slight pressure on the handles causes slips to ride the pipe up to top of rotary where handles are thrown open; the slips then resting on top of rotary.

IF DERRICK IS OUT OF LINE and the pipe hangs to the side of the rotary, the taper on the slips is such that when placed around the pipe they guide themselves in rotary bowl, eliminating having to shove the pipe to the center of the rotary.

SLIPS SO CONSTRUCTED THAT IT WILL NOT DROP THROUGH ROTARY BOWL thus preventing what is frequently a bad fishing job.

LINERS FOR RELINER TYPE SLIPS

CAN BE RESHARPENED, or when completely worn out, all that is necessary is to purchase new liners instead of complete slip.

LINERS FOR DIFFERENT SIZES OF PIPE CAN BE USED IN THE SAME SLIP, thus saving the operator from having to buy different complete slips for different size pipes.

SAVES PIPE—Owing to the construction of the liners, pipe will not turn in slips and cut rings on the pipe. The segments of slip housings being wide and constructed so as not to twist sideways and bind, allows slips to turn in rotary bowl instead.

Figure 207
T-I-W FRICTION SLIPS—Two-piece Reliner Type. Showing the two halves of the two-piece slips, also liners for same. 13¼-inch bearing surface against pipe.

Patented

UNIQUE DESIGN PREVENTS SLIPS FROM FOLDING TOGETHER and dropping through rotary bowl.

ALSO MADE IN TUBING SIZES with hinged bowl.

N O T I W S L I P C R U S H E S

SLIPS IN THE WORLD

Patented
Figure 205
T-I-W FRICTION SLIPS and ADAPTER, 14½-inch bearing surface against pipe.

Patented
Figure 206
RELEASING ADAPTER for T-I-W FRICTION SLIPS.

T-I-W FRICTION SLIPS AND ADAPTER

. . . . have proven exceptionally satisfactory on long and heavy strings of pipe, because they do not crush or cut the pipe, which is the cause of most fishing jobs. The small degree of taper of the slip gives it more holding power, and grabs the pipe with a friction hold rather than a bite of the teeth.

Note the construction of the Releasing Adapters used with the above slips. They adapt from rotary bowl to the slips and carry releasing rings which have a much larger taper than the slips, therefore, the slips hold pipe on a small taper but release on a large taper, thus preventing sticking of slips in rotary.

The Adapter is a three piece unit type securely hinged together, the three segments making it flexible to conform to badly worn rotary bushings.

T-I-W Slips are the result of years of experience serving the major oil companies of the world. The needs of operators are anticipated and are met ahead of time with improvements that are tested in the great fields of the Mid-Continent area. YOU THEREFORE SPECIFY T-I-W WITH CONFIDENCE AND SAFETY.

Refer to the figure numbers in asking for special information.

SEE 1935 COMPOSITE CATALOG

T-I-W TUBING SLIPS AND SPIDERS

With Special Releasing Features

Can be used at any place where necessary to run a string of tubing.

Designed with a small degree of taper, thus greatly increasing the holding capacity.

Distinguished for its perfect releasing features.

This releasing feature insures against biting and crushing pipe.

Made in three segments, each of which is held in perfect alignment while engaged with tubing, thus insuring a uniform friction grip.

STRENGTH: Possesses a large margin of reserve strength to hold any length of pipe.

SIZE: Slips are 10" long. The bowl carries 2"-2½"-3" slips. Slips, when placed around pipe, guide themselves into the bowl without having to shove over pipe. The handles are well balled and are sufficiently long to come out from under elevators.

Patented
Figure 208
ASSEMBLY shewing Special Tubing Slip and Spider.

Patented
Figure 209
SPIDER for Tubing Slip

Patented
Figure 210
T-I-W Tubing Slip

TEXAS IRON WORKS

SALES CORPORATION

HOUSTON, TEXAS — **1401-1423 *Maury Street***

EUROPE—Germany—*Continued*

Linne (Prospect)

Location: In Braunschweig; near Stadtoldendorf. **Geology:** Salt anticline; top of salt, 2000 feet. **Producing Formations:** No oil or gas shows, but was being drilled in 1934.

Liene-Tal (Prospect)

Location: In Hannover province; near Alfeld. **Discovery Data:** One potash well struck oil and several tons were produced. **Geology:** Salt anticline; top of salt, 1000 feet; exceedingly faulted beds. **Producing Formations:** Drilling had not yielded commercial production in 1934.

Lenzen (Prospect)

Location: In Hannover province; near Lenzen. **Geology:** Salt dome; top of salt, 1000 feet. **Producing Formations:** No oil or gas shows.

Lubtheen (Prospect)

Location: In Mecklenburg province; near Boizenburg. **Geology:** Salt dome; top of salt, 800 feet. **Producing Formations:** Potash is mined.

Luchow (Prospect)

Location: In Hannover province; near Luchow. **Geology:** Salt dome; top of salt, 700 feet. **Producing Formations:** Potash is mined, no oil or gas shows.

Luneburg (Prospect)

Location: In Hannover province; near Luneburg. **Discovery Data:** Salt mined here since 950 A.D. **Geology:** Salt dome; gypsum cap exposed above surface; top of salt less than 350 feet deep; Triassic rocks exposed on edges of dome.

Meimerhausen (Prospect)

Location: In Hannover province; near Alfeld. **Geology:** Salt anticline; gypsum at surface; salt at shallow depth. **Producing Formations:** No oil or gas shows.

Meissendorf (Prospect)

Location: In Hannover province; near Celle. **Geology:** Salt dome; top of salt 350 feet. **Producing Formation:** No oil or gas shows.

Molme or Moelme (Prospect)

Location: In Hannover province; near Peine; 25 miles southeast of Hannover. **Discovery Data:** Good oil shows in Jurassic prior to 1934; commercial production by Elwerath Company at 984 feet (300 meters) in January, 1935. 200 bbls. per day. **Geology:** Salt dome; top of salt 1000 feet. **Producing Formation:** 984 feet. **Extent of Development:** Several wells drilled to 3000 feet by end of 1933, one drilling in 1934.

Neuengamme (Gas)

Location: In Hamburg province; near Hamburg. **Discovery Data:** Gas discovered in water well at 810 feet in 1910, produced 200,000 cubic meters daily since then. **Geology:** Gas structure; believed to be deep salt dome or horst.

Neuhaldensleben (Prospect)

Location: Brandenburg province; near Neuhaldensleben. **Discovery Data:** Drilled for oil and gas, but without success up to 1934. **Geology:** Salt dome.

Nienhagen-Hanigsen (Oil)

Location: In the salt dome province; this field furnishes over 60 per cent of Germany's production; it is near the village of Nienhagen. **Discovery Data:** First productive oil well in Germany drilled on Hanigsen dome in 1860; Valendis sand discovered in 1919 and yielded a gusher in 1922 at 1200 feet. **Geology:** North district of field is on a sharply pitching radial upfold trending west-northwest from the salt plug. **Producing Formations:** Eight sands. Valendis and Wealden of the Kreide; the Macroceph and Polyplocus of the Dogger; the Rat and Mittl Keuper of the Triassic. Production came from 1950 to 4026 feet in 1934. **Extent of Development:** 800 wells completed to end of 1932. Old wells in field very crooked and most of them must be bailed. In 1933 completions included 19 producers, two salt water wells and four temporarily shut down. **Deepest Hole:** Raky's Aue 1, 4396 feet. **Productive Area:** Extended several times. **Production History:** 1933 production totaled 1,014,853 barrels. 1934 production totaled 1,685,124 barrels from 165 wells. 200,000 barrels produced in January, 1935. **Present Activity:** Present activity partly subsidized by government; 18 wells drilling early in 1934. **Principal Lease Holders:** Gewerkschaft Elwerath.

Nordsteimcke (Prospect)

Location: In Hannover province; near Fallersleben; on the Oberes Allertal axis. **Geology:** Salt anticline; top of salt 1000 feet. **Producing Formation:** Potash is mined; no oil or gas shows yet.

Oberes-Allertal (Prospect)

Location: In Sachsen-Hannover-Braunschweig provinces. **Discovery Data:** Well drilled in bottom of potash shaft near Wefensleben had oil shows in anhydrite and produced a few barrels. **Geology:** Long, faulted salt anticline; top of salt, 700 feet. **Producing Formation:** No commercial production.

Oberg Field (Oil)

Location: In salt dome province; see also Olsberg; near Gross-Ilsede salt plug. **Discovery Data:** Development of shallow wells in 1919 and 1920. **Geology:** Salt plug. **Producing Formation:** The Polyplocus of the Dogger (lower Jurassic) produces from radial anticline on southeast side of plug. **Extent of Development:** To end of 1932: 150 wells, including 70 producers, were drilled; 23 completions in 1933 included 14 producers, four salt water wells and five dry holes. **Productive Area:** Extended one mile north in 1933; edgewater on eastern part of field. **Production History:** Produced 88,935 bbls. in 1934 from 65 producers; 110,131 bbls. in 1933. **Present Activity:** Nine wells drilling in January, 1934. **Principal Lease Holders:** Erdol-Bergbau, A. G.

Octrup (Oil)

Location: In Westfalen province; near Bentheim; 100 miles east of Hannover. **Discovery Data:** Three wells drilled on south flank, one of which had oil shows in Lower Zechstein at 2800 feet; area mapped and leased by North European Oil Co. in 1931. Deutag Company drilled discovery well in 1935. **Geology:** Salt anticline; top of salt 1400 feet; structure is long anticline overturned to north with Lower Bunt Sandstein exposed at surface. **Producing Formation:** Deutag Company, February, 1935, was testing oil bearing dolomite found at 1742 feet. Dolomite in Middle Zachstein of Permian age. **Productive Area:** 9000 acres under lease, but not all proven. **Principal Lease Holders:** Nord Europaische Oel, G. m. B. H. was succeeded by Deutag Co. in 1934.

Oderwald (Prospect)

Location: In Hannover province; near Braunschweig. **Geology:** Salt anticline; top of salt 700 feet. **Producing Formation:** No oil or gas shows yet.

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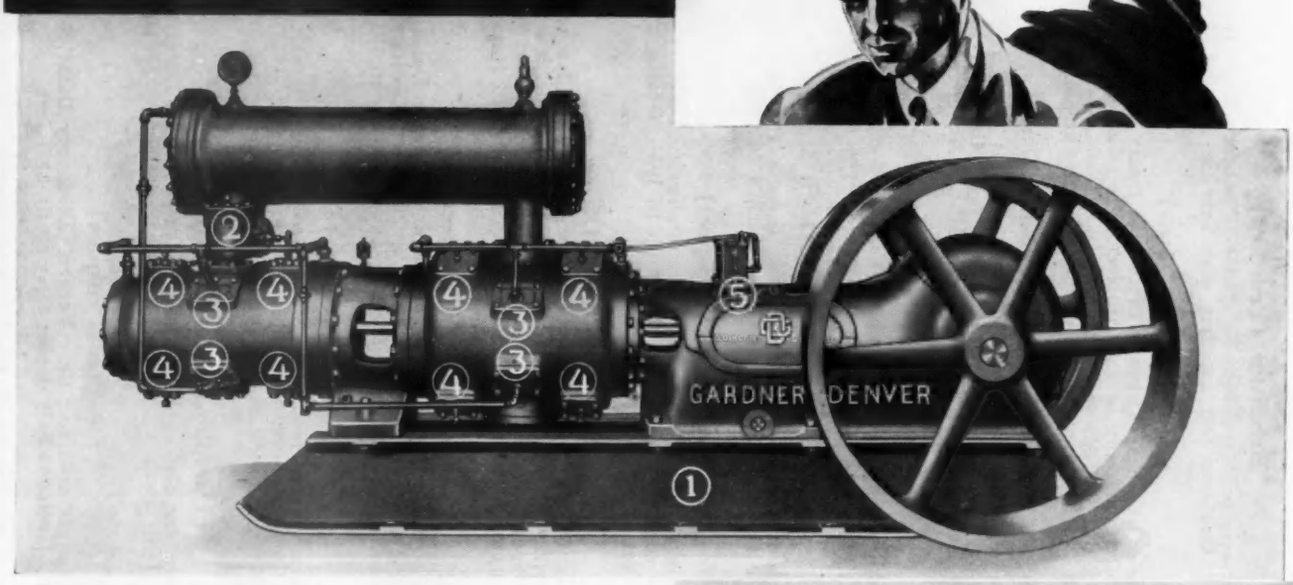

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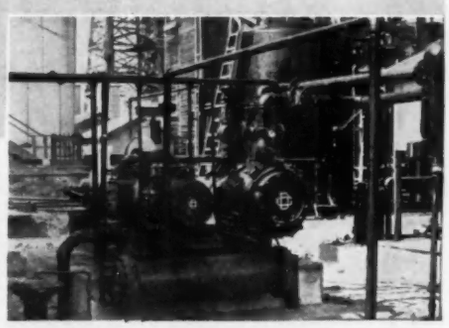

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EUROPE—Germany—*Continued*

Oelheim-Eddesse Field (Oil)

Location: In salt dome region. In Hannover province; near Peine. **Discovery Data:** Seepages at surface; Mohr's No. 3, at Eddesse, completed in 1881 at 210 feet as Germany's first "gusher" (several hundred barrels per day). This well caused development of Oelheim field in 1883. **Geology:** Salt dome, top of salt 700 feet. **Producing Formations:** Oil produced on east flank of structure; small production from Tertiary and from Parkinson and Polyplocus of Dogger; main production from Rat of the Triassic. Shallow production from 200 to 450 feet. **Extent of Development:** 460 wells completed to end of 1932, including 250 producers. **Productive Area:** Deep pay confined to narrow zone. **Production History:** Yielded 52,001 bbls. in 1934; 127,211 bbls. in 1933 from 13 producing wells. **Principal Lease Holders:** Preussiche Bergwerks u. Hutten, A. G.

Offleben (Prospect)

Location: In Sachsen province; near Madgeburg. **Discovery Data:** No oil or gas shows up to 1934. **Geology:** Salt anticline; top of salt 350 feet.

Oldenberg (Prospect)

Location: In Oldenberg province; near Oldenberg. **Discovery Data:** Reported in 1934 as a Torsion balance discovery. **Geology:** No data.

Olsberg or Oberg (Oil)

Location: In Hannover province; near Peine Oberg oil field on southeast flank of dome; see also Oberg. **Geology:** Salt dome; top of salt 700 feet. **Producing Formations:** Oil comes from Dogger formation of Middle Jurassic. Potash also mined here.

Oxstedt (Prospect)

Location: In Hamburg province; near Cuxhaven. **Discovery Data:** One well showed Upper Cretaceous chalk unusually high. **Geology:** Questionable prospect.

Rautheim (Oil)

Location: In Braunschweig province; near Braunschweig. **Geology:** Salt dome; top of salt 700 feet. **Producing Formation:** Some production from Dogger formation at 2600 feet on east flank. **Extent of Development:** No deep wells drilled.

Rethem (Prospect)

Location: In Hannover province; near Verden. **Geology:** Salt dome; top of salt 600 feet. **Producing Formation:** No oil or gas shows. **Extent of Development:** Potash mined in 1935.

Rolfsbuttel

Location: In Hannover province; near Peine. **Discovery Data:** Oil shows and slight production from Lower Cretaceous about 4½ miles west of dome. **Geology:** Salt dome; top of salt 700 feet. Small dike of basalt intrudes salt. Basalt is Miocene, or younger, in age.

Rudersdorf (Prospect)

Location: In Brandenburg province; near Berlin. **Discovery Data:** No oil or gas shows yet. **Geology:** Salt dome or anticline; top of salt 1800 feet. Uplifted Triassic at surface.

Salzgitter (Prospect)

Location: In Hannover province; near Salzgitter. **Discovery Data:** No oil or gas shows up to 1934. **Geology:** Salt anticline with Triassic exposed at surface.

Sarstedt-Sehnde (Oil)

Location: In Hannover; near Lehrte. **Discovery Data:** Asphalt mined since 1860. **Geology:** Salt dome; top of salt 650 feet. **Producing Formations:** Light oil produced from Rat formation in Upper Triassic and Lower Cretaceous on east flank. **Extent of Development:** No commercial production.

Schessinghausen (Prospect)

Location: In Hannover; near Nienburg. **Discovery Data:** Torsion balance prospect; three showings in Oligocene at about 1000 feet. **Geology:** Probable salt dome. **Extent of Development:** Several wells drilled. No commercial production.

Schoebull (Prospect)

Location: In Schleswig-Holstein province; near Husum. **Geology:** Probable dome; Devonian formation exposed at surface. **Extent of Development:** Undrilled.

Soltau (Prospect)

Location: In Hannover province; near Soltau. **Discovery Data:** No oil or gas shows up to 1934. **Geology:** Salt dome; top of salt 1000 feet.

Sophiental (Prospect)

Location: In Braunschweig province; near Braunschweig. **Discovery Data:** Torsion balance discovery. No oil or gas shows up to 1934. **Geology:** Salt dome; top of salt 700 feet.

Sottorf (Prospect)

Location: In Hannover province; near Hamburg and 17 miles southwest of Hannover. **Discovery Data:** Discovered by water well; some few tons of oil produced from Upper Cretaceous limestone on top of dome; best oil shows in the north coast region. **Geology:** Salt dome; top of salt 1100 feet.

Sperenberg (Prospect)

Location: In Brandenburg province; near Berlin. **Discovery Data:** Surface indications of structure with Permian Zachstein at 2000 feet. **Geology:** Salt dome or anticline. **Producing Formation:** No oil or gas shows up to 1934.

Stade (Prospect)

Location: In Hannover province; near Stade. **Geology:** Horst; salt interbedded with red beds. Uppermost Rotliegendes, Lowermost and Middle Zechstein overlain by red beds of Permian. **Producing Formation:** No oil or gas shows up to 1934.

Steinhuder-Meer (Prospect)

Location: In Hannover province; near Neustadt. **Discovery Data:** Oil and gas shows. **Geology:** Salt dome; top of salt 1000 feet. **Extent of Development:** Potash is mined.

Stocken (Prospect)

Location: In Hannover province; near Verden. **Discovery Data:** No oil or gas shows up to 1934. **Geology:** Salt dome; top of salt 1000 feet.

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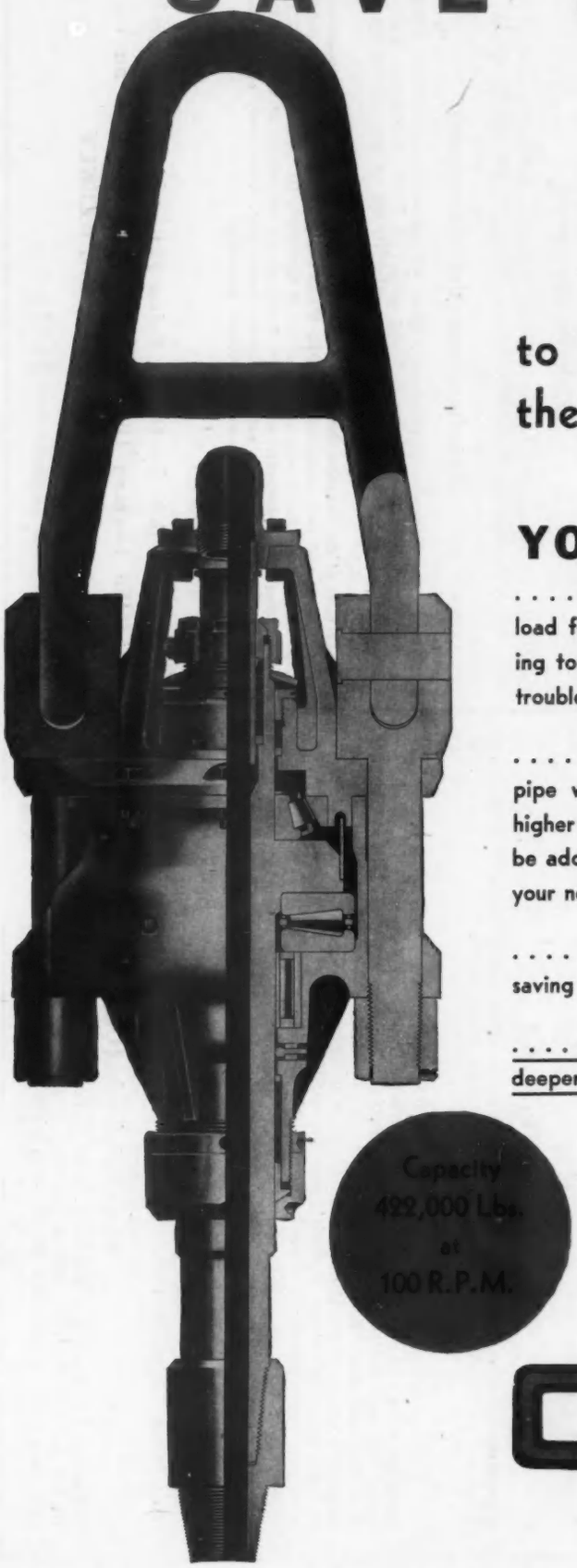

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EUROPE—Germany—*Continued*

Sohlingen (Prospect)

Location: In Hannover province; near Rotenberg. **Discovery Data:** Torsion balance and seismograph. **Geology:** Salt dome; first well found 80° dip in Eocene formation at a depth of 1500 feet. **Extent of Development:** Was being drilled in 1934.

Stassfurt (Prospect)

Location: In Anhalt province; near Stassfurt. **Geology:** Salt anticline; top of salt 600 feet. **Producing Formation:** No oil or gas shows up to 1934. **Extent of Development:** Oldest potash mine in Germany.

Tegernsee Field (Oil)

Location: In Bavaria. **Discovery Data:** Seepage of paraffin oil with specific gravity of 0.790 to 0.835 known for many years, prior to 1881. **Geology:** Complicated tectonical conditions. **Producing Formations:** Flysch sandstones, Kieselkalk, the conglomerate and in the chalk of the Alpine Cretaceous. **Extent of Development:** Seven wells dug since 1881. **Production History:** Cumulative total to end of 1933 about 28,000 barrels. Small production in 1933; none reported in 1934.

Thiede (Prospect)

Location: In Braunschweig province; near Braunschweig. **Geology:** Salt dome; top of salt 700 feet. **Producing Formation:** No oil or gas shows up to 1934. **Extent of Development:** Potash mined.

Verden (Prospect)

Location: In Hannover province; near Verden. **Discovery Data:** Oil shows in Tertiary at 650 feet prior to 1934. **Geology:** Salt dome.

Volkenroda (Oil)

Location: In Thuringian Basin. **Discovery Data:** Accidental discovery. Oil came through faults below the galleries in a potash mine in 1930. **Geology:** Two flat anticlines running east and west. **Producing Formations:** Dolomite of Middle Zachstein contains oil and gas. Oil occurs in dikes. Dolomite found at 3300 to 4000 feet. Specific gravity, 0.836; contains 25 percent gasoline; 1.94 per cent paraffiin. **Production History:** Produced about 10,444 bbls. in 1934; 40,698 bbls. in 1933.

Volkensen (Prospect)

Location: In Hannover province; near Zeven. **Discovery Data:** Geophysical discovery prior to 1934. **Geology:** Dome prospect. **Extent of Development:** Was being drilled in 1934.

Wietz-Steinforde (Oil)

Location: In Hannover province; near Celle. **Discovery Data:** First well drilled to 121 feet in 1859; in 1899 a "gusher" (initial production more than 100 barrels daily) was completed at 420 feet. **Geology:** Salt dome; complicated structure; Under an almost horizontal cover of Pleistocene, Tertiary and Youngest Cretaceous there is found a series comprising Middle Jurassic to Lower Cretaceous dipping steeply (60° to 70°) away from salt core. This structural unit is thrust on a fault plane toward the north on a series of similarly dipping strata comprising Upper Triassic and Lower Jurassic. Both structural units contain a large number of faults belonging to two systems, one transverse and one longitudinal. **Producing Formations:** On north and northwest flanks; six producing sands, including Wealden (Lower Cretaceous); Upper Dogger (Middle Jurassic); and Rat (Upper Triassic). Wealden oil sand is mined here from depth of 1000 feet and oil reclaimed by washing. Production also obtained from 800-foot horizon. All horizons are sandstone except Wealden. **Extent of Development:** 2000 wells completed to end of 1932, when 300 of them were still productive. **Deepest Hole:** 6627 feet; on north flank. **Productoin History:** 1933 production, 376,628 barrels; 1934 production, 363,118 barrels. Production was 200,000 barrels in 1900. About 440 wells on production in 1934. Peak of production was in 1908. **Principal Lease Holders:** Deutsche Erdol-Aktiengesellschaft.

Wilhelmshaven (Prospect)

Location: In Hannover province; near Gifhorn. **Discovery Data:** Torsion balance discovery prior to 1934. **Geology:** Prospective dome or anticline. **Extent of Development:** Undrilled.

Wolthausen (Prospect)

Location: In Hannover province; near Celle. **Discovery Data:** Discovered by torsion balance prior to 1934 and checked by seismograph. Salt proved by drilling. **Geology:** Salt dome. **Producing Formation:** No oil or gas shows.

Zicherie (Prospect)

Location: In Hannover province; near Gifhorn. **Geology:** Salt dome; top of salt 1700 feet. **Extent of Development:** No oil or gas shows up to 1934.

Zwischenahner Meer (Prospect)

Location: In Oldenburg province; near Oldenburg. **Discovery Data:** Torsion balance discovery proved by drilling prior to 1934. **Geology:** Salt dome; top of salt 1750 feet. **Extent of Development:** No oil or gas shows up to 1934.

While most of the foregoing data on oil and gas fields and prospects of Germany were taken from private sources and back copies of The OIL WEEKLY, articles which were especially helpful were Dr. J. Brian Eby's "Salt Domes and Structures of Germany", Dr. A. Bentz's "Is It Possible to Increase German Oil Production?" and Walter Kauenhowen's "Highlights of Oil Field Development in Germany", all of which were published in the February 5, 1934 issue, of The OIL WEEKLY. Transactions of the A.I.M.M.E. were also freely consulted.

An article by Dr. J. Brian Eby, which will describe the German Oil Situation will appear in an early issue of THE OIL WEEKLY

Oil and Gas Fields of Europe—Italy

Montechino-Velleja (Oil)

Location: Considered as a single field; Province of Piacenza; Twps. of Lungagnano Cal d'Arda, Gropparello, Carpaneto, Ponte de Olio, and Bettola; about 30 kilometers southwest from Piacenza, and 50 miles southeast of Milan. **Discovery Data:** The general surface indications were gas seepages. The first wells were drilled in 1889 by a German Syndicate with unsatisfactory results. The concession was given after that to the Marchand Company in 1902, and passed in 1906 to the Societa Anonima "Petroli d' Italia." **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Eocene sands produced at depths ranging from 30 to 900 meters. Gravity of oil is from 0.745 to 0.810; aromatic base. **Extent of Development:** Up to June 30, 1934: number of oil wells, 600; number of failures, about 100. Note: Up to January 1, 1932, Montechino had completed 155 producers and 123 failures. Veleja had completed 75 producers and 209 failures. **Deepest Hole:** Petroli d'Italia's No. 167. Depth attained, 1190 meters. Formation: limestone. The well had not been completed October 31, 1934. **Productive Area:** Total area: 6000 hectares as of October 31, 1934; area proved for oil production, about 20 percent of total area; All sides are still open for possible enlargements. **Production History:** 210,000,000 liters to end of 1933; daily average production: 6000 liters as of June 30, 1934; gravity, 0.790; number of wells on production June 30, 1934, was 150. **Present Activity:** 7 of the Pennsylvania and Allianza mud-stream type rigs. **Principal Lease Holder:** The field is exploited only by Societa Petroli d'Italia Company.

Salsomaggiore (Oil)

Location: District of Emilia, Province of Parma. Comune of Salsomaggiore. Wells situated at Salsominore, Salsomaggiore, Monte Cucco, Ferdane, Centopozzi and Rovacchia. Field extends under the town of Salsomaggiore and to the northwest and southeast of the town. **Discovery Data:** First signs of oil discovered by digging for water in Centopozzi area. First well, No. 1 SPI, completed by the Societa Petrolifera Italiana in 1925, at a depth of 600 feet, with an initial production of 4 bbls per day, together with much salt water. Specific gravity of crude about 0.7980. **Geology:** A slightly asymmetrical anticline, with thrust-faults on both flanks. **Producing Formations:** Alternating thin sands and sandy marls of Miocene and Oligocene age, overlain by a cap of Miocene marl. Water sands occur in frequent alternation with oil-sands. Top of sand series occurs at depths varying from 400-600 feet. Average specific gravity of crude is 0.7973. Paraffin-base. **Extent of Development:** From discovery through June 30, 1934: completed oil wells, all of which produce a little gas, 121; completed gas wells (at Rovacchia), 4; failures (finding water only), 43. **Deepest Hole:** No. 8 RRT, drilled by the Regie Terme Bath Company, went to 3267 feet and was completed in 1932 as a producer of oil and salt-iodine water. Flowed spasmodically by "heads" and gave as much as 100 barrels of oil per day on rare occasions. Well is located in the town of Salsomaggiore—it stopped drilling in Oligocene marls and sands. **Productive Area:** At shallow depths of from 400-600 feet, productive area which is proven amounts to about 200 acres. At greater depths down to about 3000 feet, productive proven area amounts to about 20 acres. All oil wells produce some gas, most of which is used commercially. The field is defined as to width, but not as to length. **Production History:** Approximate total amount of oil produced up to the end of 1933: 264,000 barrels. Approximate amount produced from Jan. 1st, 1934, to June 30, 1934: 30,000 barrels. Daily average production as of June 30, 1934: 136 barrels (130 barrels of 0.7988 crude, and 6 barrels of 0.8400 crude). Number of producing wells as of June 30, 1934: 81 shallow and 3 deep. **Present Activity:** Four portable cable-tool rigs and two Canadian rigs converted to cable drilling; all operated by the Societa Petrolifera Italiana. **Principal Lease Holders:** Regie Terme Bath Company, principal concession holders and entitled to drill for oil and water; Societa Petrolifera Italiana, sub-concession holders and entitled to drill only for oil. This is the only company now drilling and actively engaged in development work; Azienda Generale Italiana Petroli (A.G. I.P.) the government-owned company, gradually abandoning their two fields at Rovacchia and Ferdane, and only pumping a few wells at Ferdane. **Remarks:** In the Salsomaggiore area, all oil is artificially raised to the surface. The S. P. I. and A. G. I. P. use ordinary pumping machinery, while the Regie Terme employs gas-lift. All producing wells also pump salt-iodine-bromine water, usually of high gravity.

Vallezza (Oil)

Location: Previously known as Neviano Dei Rossi' field; located in District of Emilia, Province of Parma, Comune of Fornovo. Wells situated at Monterotondo and Vallezza, about 25 kilometers southwest of Parma in the Appenine foothills. **Discovery Data:** A seepage of oil at Monterotondo had been known from very early times and was the original cause of development work; several hand-pits, 2-20 meters deep, were first sunk to catch the oil. The first well, No. 1, was sunk in 1907 by the Societa Petrolifera Italiana to a depth of 449 feet and gave about 0.15 barrel per day of a very light crude from a small sand body. Extension of the field southwestwards in 1931 led to the discovery of the main productive series at depths exceeding 1650 feet. **Geology:** A sharply overturned sand and marl series provides the main production in the new part of the field at depths varying from 1650-3000 feet. Shallow production in the older part (down to 1200 feet) is from irregular sand bodies in an overthrust and contorted mass of plastic clays. Age of producing series thought to be Oligocene or Upper Eocene. Average gravity of crude is 0.7682. Paraffin-base. **Producing Formations:** See "Geology." **Extent of Development:** From discovery to June 30, 1934: Completed oil wells, nearly all of which at some time of their life produced gas, 109; Completed gas wells, none; Dry holes, none. **Deepest Hole:** No. 89 Vallezza, drilled by the S. P. I. to 3389 feet and completed in 1932 with a production of 1 barrel a day from the shallow horizons. **Productive Area:** As of June 30, 1934: Proven area of production is about 200 acres, over one half of which deeper production is available as well as shallow .Nearly all wells produce gas, which is first passed through a gasoline extraction plant and then utilized for heating and motive power, both in the field and at the Fornovo refinery. The field is not really defined in any direction as yet. **Production History:** Owing to the lack of early records, the following figures are very approximate: Total amount of oil produced from date of discovery until the end of 1933 was 263,000 barrels; total amount produced from Jan. 1st, 1934—June, 1934, was 31,000 barrels; number of producing wells, as of June 30, 1934, was 94. Together they were producing 180 barrels per day. **Present Activity:** 5 portable cable-tool rigs, one standard Pennsylvanian cable rig, and three Canadian rigs converted to cable-drilling. Rotary drilling to be introduced this year. **Principal Lease Holder:** Societa Petrolifera Italiana. **Remarks:** All wells are now on the pump, although during 1932 and 1933 several flowing wells were brought in. There is an entire absence of edge-water in this field.

Presentation of the foregoing data on oil fields of Italy was made possible through co-operation given The OIL WEEKLY by D. A. Greig, geologist of Farnovo-Taro in Parma, and Graham H. Kemper of Rome.

Oil and Gas Fields of Europe . . . Poland

General Information

Poland's oil fields are on the slopes of the Carpathian Mountains in a belt 30 miles wide and 250 miles long, extending from Gorlice southeasterly to Stanislawow. The fields may be divided into four geological districts, from west to east: Gorlice, Krosno, Boryslaw, and Stanislawow. The Boryslaw district has been most drilled and most productive, although its development history has covered only about 35 years, while some of the other areas have been producing around 60 years. The latter, in some instances, however, have been only partially developed.

In 1924 it was estimated that the 26,000,000 metric tons that had been produced in Poland represented only about 15 percent of the probable ultimate supply. About two thirds of the total produced had been from the Boryslaw district.

Drohobycz District

Boryslaw-Tustanowice-Mraznica (Oil)

Location: Six miles south west of city of Drohobycz; mining district: Drohobycz; political (administrative) district: Drohobycz. **Discovery Data:** Oil seepages. Small quantities of oil were obtained in 1810 by Joseph Hecker and John Mitis from shallow hand-dug wells. In 1835 there were in Boryslaw 30 hand-dug wells. In 1862 the first well was hand-drilled by Robert Doms in Boryslaw to 452 feet. In 1865 there were in Boryslaw and Wolanka 2694 hand-dug wells. Average depth of these wells 100 to 370 feet. Production of oil in Boryslaw in 1873 was about 165,000 barrels. Besides oil, earth-wax is worked in Boryslaw. In 1873 was worked about 350 metric tons, in 1933—326 metric tons. **Geology:** Deep recumbent fold overturned north, southern limb of fold is refolded in minor culminations and depressions. Frontal bend of fold squeezed into Miocene salt, which in northern part of fold lies conformably on Polanica beds. In southern part deep fold lies under overthrust of Orow and Marginal slices (skiba). Boryslaw-Tustanowice-Mraznica oil field lies on great transverse culmination of Carpathians. Deformations and difference in saturation and porosity of sandstones are shown by pools in one large field. The highest production of oil of field Boryslaw-Tustanowice-Mraznica was in 1909 about 15,000,000 barrels. Entire structure is complicated by few transverse faults, Popiele fault limits the field on north west. Axis of the fold dips southeast. From southeast, partly from south, field is completely flooded. **Producing Formations:** Six producing horizons. Oil horizons in beds of overthrust (Inoceramus beds) mainly in Mraznica (south of Boryslaw.) Main producing horizons in great deep fold, in Oligocene Polanica beds and menilite slates, Upper Eocene, Lower Eocene and Cretaceous Jamna sandstone. The most important producing horizon in Boryslaw-Tustanowice oil field is Oligocene Boryslaw sandstone. Depth of wells: First horizon in overthrust: 525 to 3150 feet; second horizon in Polanica beds at 1000 to 5300 feet; third horizon in menilite slates (Kliwa sandstones) at 2500 to 5500 feet; fourth (main) horizon in Boryslaw sandstone at 3900 to 6000 feet; fifth in Upper Eocene at 4500 to 6000 feet; sixth horizon in Lower Eocene and Jamna sandstone at 4900 to 6000 feet. Specific gravities of oil: horizons in overthrust beds: gravity 0.830 to 0.885 (at 15°C). Oil non-paraffin and paraffin. Paraffin content: 0.7 to 9.8%; gasoline: 12.2 to 28.4%; second horizon in Polanica beds: gravity 0.855 to 0.873; paraffin content: 8.7 to 9.3%; gasoline: 9 to 14.4%. Third horizon in Menilite Slates (Kliwa sandstones) gravity 0.857 to 0.861, paraffin content: 8.6 to 9.2%, gasoline: 10.2 to 14.5%. Fourth horizon in Boryslaw sandstone: gravity 0.850 to 0.866, paraffin 8.3 to 8.9%, gasoline content: 7.5 to 16.7%. Fifth horizon in Upper Eocene: gravity 0.854 to 0.869, paraffin: 8.1 to 9.6%. Sixth horizon in Jamna sandstone: gravity 0.855 to 0.868, paraffin: 8.2 to 8.9%, gasoline: 8.1 to 14%. **Extent of Development:** 1264 tests drilled since discovery of the field to June 30, 1934. Number of failures unknown. **Deepest Hole:** Pioneer Oil Co.'s wildcat drilled in Orow, about 3 miles south of Boryslaw-Tustanowice oil field. Present depth (June 30, 1934) 7353 feet. Oligocene Polanica beds under overthrust. At 7160 feet showings of oil and gas. This is the deepest well ever drilled in Poland. Drilling by cable tools. Deepest in field proper: Malopolska's Stateland-Poludnie 1, abandoned account of edge water in Upper Eocene at 2085 meters. **Productive Area:** About 2850 acres. Field is defined on east, north and west, not on south. **Production History:** Total amount of oil produced by field since 1874 to end 1933 is about 175,000,000 barrels. From January 1, 1934, to June 30, 1934: 1,080,000 barrels. Present average daily production of the field: 6000 barrels of oil from 525 wells and 15 millions cubic feet of gas. (June 30, 1934.) 128 wells producing only gas. **Present Activity:** 18 cable rigs running June 30, 1934. **Principal Lease Holders:** Galician Carpathian Oil Company, Nafta Oil Company, Fanto Oil Company, Premier Oil Company, Galicja Oil Company, Limanowa Oil Company, Standard Nobel Oil Company, and many minor oil companies.

Daszawa-Gelsendorf (Gas)

Location: 6 miles northeast of city Stryj and 23 miles east of Boryslaw-Tustanowice-Mraznica field; mining district: Drohobycz; political district: Stryj. **Discovery Data:** Gas seepages. In 1912 wildcat drilled for potassium salt by Simon Co. to 1836 feet and at 820 feet encountered large quantities of gas. In 1916 this well was abandoned. In 1921 was completed Pilsudczyk 1 by Gazolina Natural Gas Co.; initial production 1 million cubic feet of gas daily at 1300 feet. In 1924 this well was deepened to 2414 feet, producing initially about 7 millions cubic feet of gas daily. In 1923 was completed second well Daszawa 1, producing large quantities of gas from 1312 feet. **Geology:** Flat dome of Middle Miocene beds, with lengthening northwest in Sub-Carpathian depression. Series of Middle Miocene: (1) Ceritium beds, shales and sands (Pokucie beds) (2) Red marls with saliferous beds (Stebnik beds) (3) Series of gray shales and sandstones (Dobrotow beds). Lower Miocene: Salt bearing shales and clays (salt formation with conglomerates of Sloboda Rungurska and Truskawiec). Gas series belongs to Tortonian above Stebnik beds. Saliferous beds with potassium and common salts occur in three levels: (a) Cerithium beds, (b) Stebnik beds (Middle Miocene), (c) Lower Miocene (Helvetian). According to some geologists, (Dr. Konstanty Tolwinski) structure of saline-plug (dome) type also may be expected in Daszawa-Gelsendorf gas field. **Producing Formations:** Two gas horizons in Middle Miocene beds, (Tortonian). Main gas horizon at 2250 to 2550 feet. Initial reservoir pressure in Daszawa-Gelsendorf gas field was about 900 pounds per square inch. Natural gas from Daszawa-Gelsendorf gas field is dry, containing 94.16 to 94.64% of methane; 2.02 to 2.33% of oxygen; 2.73 to 3.5% of nitrogen; and 0 to 0.15% of carbon dioxide; hydrogen and carbon monoxide not present. **Extent of Development:** 20 tests drilled from discovery of the field to June 30, 1934; 2 dry and 18 gas producers. **Deepest Hole:** Polmin Oil Co.'s (Polish State Oil Co.) Polmin 1, completed October 8, 1928, at 2552 feet, producing initially about 10 million cubic feet of gas daily. Initial shut-in pressure was 850 pounds per square inch. **Productive Area:** Area proved for gas production about 1000 acres. Probable extension of gas area about 50 miles. 15 miles northwest of Daszawa two wildcats drilled in Opary by Polmin Oil Company encountered important gas quantities at 968 feet. **Production History:** Total amount of gas produced since 1921 to end 1933 about 27,000,000,000 cubic feet.

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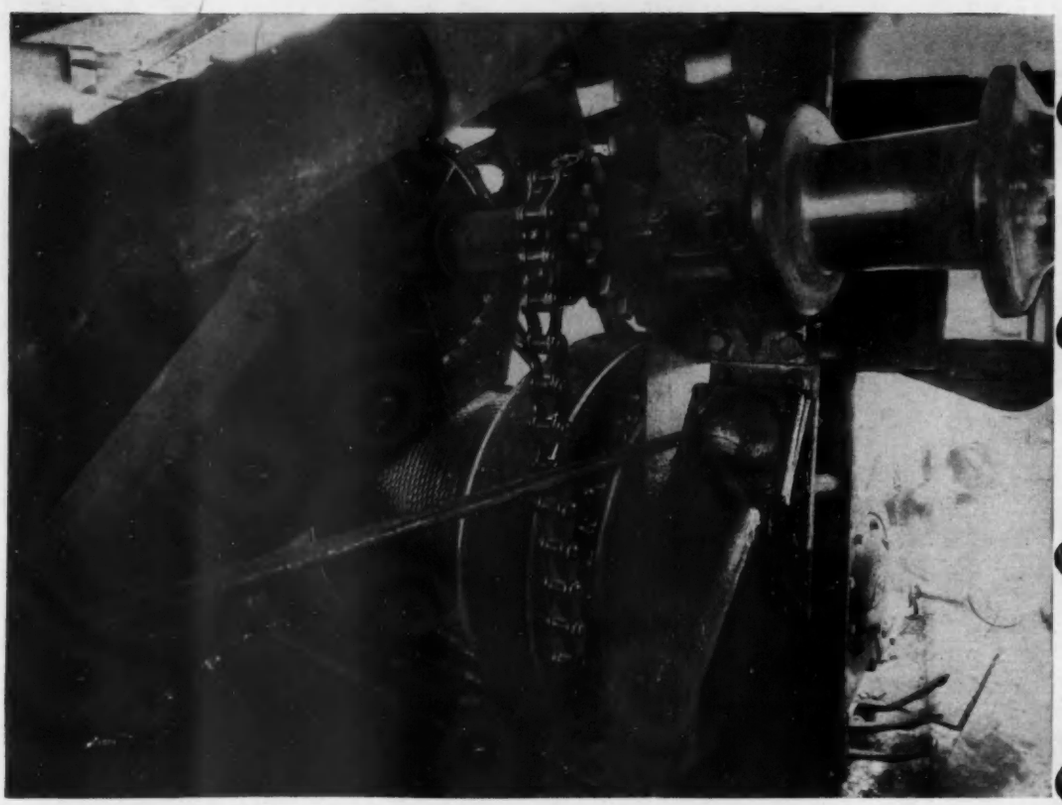

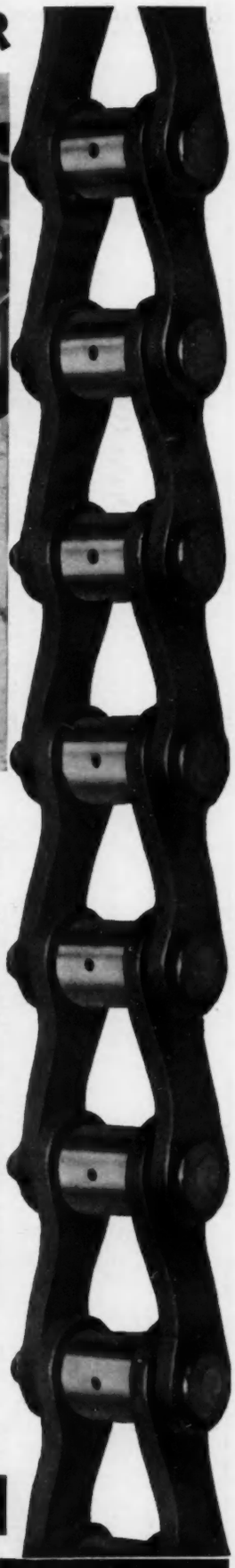

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EUROPE—Poland—*Continued*

From January 1, 1934, to June 30, 1934, about 2,345,000,000 cubic feet. Present average daily production about 11,000,000 cubic feet of gas from 13 wells. 4 wells temporarily shut down. (June 30, 1934). **Present Activity:** 7 rigs running June 30, 1934, two rotary, others cable tools. Two miles northwest of Daszawa-Gelsendorf gas field one wildcat drilled in Uhersko by Polmin Oil Co. Present depth 1600 feet in Miocene. At 1053 and 1280 feet important gas showings, about 350,000 cubic feet daily. There are three gas pipelines, transporting natural gas from Daszawa-Gelsendorf gas field. One from Daszawa to Polish State Oil Refinery in Drohobycz, seven-inch, 15 miles long. Second from Daszawa to Boryslaw-Tustanowice oil field, seven-inch, 24 miles long. Third from Daszawa to city Lwow, seven-inch, 49 miles long, built in 1929 by Gazolina Natural Gas Co. Capacity of Daszawa-Lwow line is about 5 million cubic feet daily. **Principal Lease Holders:** Gazolina Natural Gas Company, Polmin Oil Company (Polish State Oil Company), and Malopolska Oil Company.

Lodyna (Oil)

Location: 15 miles southeast of city of Sanok and 3 miles southeast of oil field Ropienka-Wankowa; 4 kilometers north of Ustrzyki Dolne; mining district: Drohobycz; political district: Lesko. **Discovery Data:** Oil seeps. 4 hand-dug wells in 1880. In 1886, J. Walter, I. Winnicki and Dr. Jaminski had two wells; depth, 126 and 250 meters, producing 65 tons annually. Production in 1888 was 6225 barrels from 10 wells. In 1889, field had 14 wells which yielded 10,400 barrels. Gravity of oil was 34 deg. Be. **Geology:** Lodyna oil field is geologically the southeast extension of the oil field Paszowa-Ropienka-Wankowa. Diapiric fold with southern limb overturned south. Narrow producing area about 600 feet in width. **Producing Formations:** Few horizons in Oligocene Krosno beds and menilite slates Kliwa sandstones. Depth of wells: 650 to 1150 feet. Oil is non-paraffin base of specific gravity of 0.827 to 0.853. **Extent of Development:** 41 tests, including 13 failures drilled to June 30, 1934. **Deepest Hole:** Kosciuszko 38, completed September 19, 1928, at 1672 feet with initial production about 8 barrels daily from Kliwa sandstones. **Productive Area:** About 40 acres. **Production History:** Total amount of oil produced by field from 1880 to end of 1933 is about 100,000 barrels (partly estimated). From January 1, 1934, to June 30, 1934, about 1090 barrels. Average daily production 5 barrels from 20 wells as of June 30, 1934. **Present Activity:** No drilling June 30, 1934. **Principal Lease Holders:** "Lodyna" Oil Company.

Nahujowice (Oil)

Location: 18 kilometers northwest Boryslaw, 20 kilometers southeast Sambor; mining district of Drohobycz. **Discovery Data:** Oil and gas seeps. In 1791 there were wells yielding 43 barrels yearly. First well drilled by St. Szczepanowski & Fedorowicz in 1892, to 170 meters; initial production was 5 barrels daily. **Geology:** An unsymmetrical anticline. Western lengthening of the deep element of Boryslaw. **Producing Formations:** Formerly oil and gas field, at present oil field. Two producing zones in Oligocene (at the base of Menilite slates) and Upper Eocene. On the top of the anticline the horizons are encountered at about 160-200 meters. The dip of the beds is 15-20 degrees. Gravity of oil 0.935, about 9% paraffin. Many dug wells. 9 drilled wells, including 6 oil wells and 3 failures up to June 30, 1934. **Deepest Hole:** Standard Noble Co.'s No. 1, abandoned in 1927 at 1151 meters, in Eocene. Situated on the lowered part of the anticline, about 2 kilometers south of the top of anticline. **Productive Area:** Approximately 5 hectares. **Production History:** From 1892 to end of 1933—5973 tons. In first six months of 1934—131 tons, 4 producing wells. Daily output 0.06 tons as of June 30, 1934. **Present Activity:** No rigs running. **Principal Lease Holders:** Ks. M. Jednaki.

Opaka (Oil)

Location: 10 kilometers west Boryslaw; mining district of Drohobycz. **Discovery Data:** Discovery well was Hannowerskie-Galicyjskie Tow. Naft's No. 1, completed in 1896, at 487 meters for 7 barrels daily. **Geology:** A narrow anticline being as the secondary fold in overthrusted Carpathian rocks. The dip of the beds is very steep. **Producing Formations:** Three oil bearing horizons in sandstones of Eocene age at 350 to 750 meters. Gravity of oil 0.808-0.817; 5.4 to 6.1% paraffin. **Extent of Development:** 8 oil producers and 7 failures to June 30, 1934. **Deepest Hole:** Hanowerskie Tow.'s Opaka 3, depth 1017 meters, abandoned in 1905. **Productive Area:** Approximately 5 hectares. **Production History:** From 1899 to end of 1933: 15,858 metric tons. In first 6 months of 1934: 252 tons. Daily average production 1.4 tons from 5 producing wells as of June 30, 1934. **Present Activity:** None in September, 1934. **Principal Lease Holders:** Karpaty-Malopolska.

Orow (Oil)

Location: 6 kilometers southeast Boryslaw, 8 kilometers east Schodnica; mining district of Drohobycz. **Discovery Data:** Oil seepages; in 1881 there were 32 hand-dug wells with a production of 140 tons yearly. In 1891 M. Hauptman drilled No. I, to 116 meters. It produced 15 tons yearly. **Geology:** Irregularly folded Carpathian rocks. **Producing Formations:** The oil occurs from joints and fractures in hard sandstones of Cretaceous age (beds of Inocerame) in several horizons from 90 to 560 meters. The gravity of oil 0.901. **Extent of Development:** 14 producers and 4 failures up to June 30, 1934. **Deepest Hole:** Tow. Akc. dla Przemyslu Naft.'s No 1, depth 678 meters, abandoned in 1902. Production from 130 meters, 1, 3 tons daily. **Productive Area:** Approximately 5 hectares. **Production** History: From 1888 to end of 1933—2865 tons. In first six months of 1934—82 tons. Daily production 0.04 tons from 3 producing wells as of June 30, 1934. **Present Activity:** None. **Principal Lease Holders:** Gazolina Co

Paszowa-Ropienka-Wankowa (Oil)

Location: 13 miles east of city Sanok; 15 kilometers northeast of Lesko; mining district of Drohobycz; administrative district of Lesko. Field extends over localities: Stankowa, Paszowa, Ropienka, Wankowa, Brelikow, Leszczowate. **Discovery Data:** Oil seepages and hand-dug wells. In Ropienka first well was completed in 1885 with commercial production of oil from 558 feet in Oligocene Kliwa sandstones (in menilite slates.) In Wankowa first well drilled in 1885. The highest production of oil in Ropienka was in 1894 (about 51,000 barrels from 41 producing wells). Production of Wankowa in 1902 was about 125,000 barrels from 55 wells. **Geology:** Very long diapiric fold, overturned south. Narrow producing area (600 feet) about 8 miles long. **Producing Formations:** Several irregular producing horizons in Oligocene Lower Krosno beds and Kliwa sandstones (in menilite slates). Specific gravity of oil (at 15°C) Stankowa and Paszowa: oil non-paraffin 0.844 to 0.858, gasoline content 29%, paraffin 0.6 to 0.9%. Ropienka: 0.831 to 0.871, gasoline 16 to 19%, paraffin 4.4%. Wankowa oil paraffin 0.844 to 0.871, gasoline 17%, paraffin 4.4 to 5.7%. **Extent of Development:** About 353 tests drilled since 1885 to June 30, 1934. These include at least 20 known failures. **Deepest Hole:** Galician Carpathian Oil Co.'s wildcat Brelikow II No. 1, in Wankowa drilled on north of the producing area. Dry, abandoned April 7, 1932, at 3280 feet in Cretaceous beds. At 2460 to 2625 feet showings of oil of specific gravity 0.844 (15°C). **Productive Area:** About 400 acres. **Production History:** Total amount of oil produced by field from 1885 to end 1933, about 5,256,000

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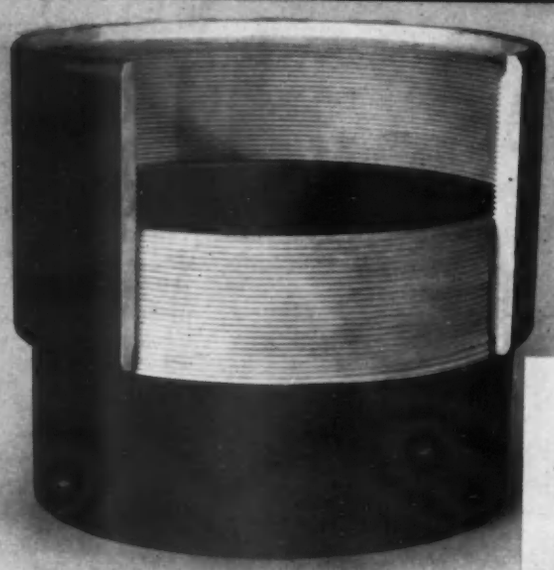

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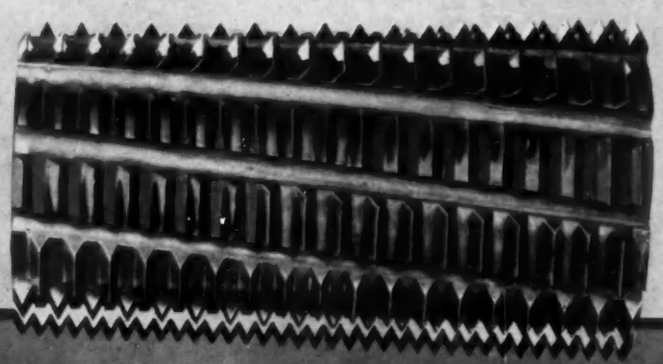

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barrels. From January 1, 1934, to June 30, 1934—78,700 barrels. Average daily production 395 barrels from 294 wells as of June 30, 1934. **Present Activity:** Two cable tool rigs running June 30, 1934. **Principal Lease Holders:** Galician Carpathian Oil Company, (Karpaty-Malopolska); "Ropienka" Oil Company; Standard Nobel Oil Company.

Polana (Oil)

Location: 15 kilometers south Ustrzyki Dolne, 10 kilometers east Rajskie mining district: Drohobycz. **Discovery Data:** Oil seepages and dug wells. F. Ishwood, No. 1, completed in 1880 at 130 meters, 40 tons daily. In 1888 8 wells drilling, 10 wells producing, 827 metric tons yearly. **Geology:** An unsymmetrical fold, inclined north. **Producing Formations:** Two oil-bearing horizons in sandstones in formation of Krosno (Upper Oligocene), at 100-300 meters, according to distance from the axis of the anticline. Gravity of oil 0.850-0.858; 2.5-6 percent paraffin. **Extent of Development:** About 26 tests including 8 failures, up to June 30, 1934. **Deepest Hole:** Dr. Silbeberg's Zurich 1, abandoned February, 1924, at 574 meters, dry. **Productive Area:** About 6 hectares. **Production History:** From 1884 to end of 1933—12,000 metric tons (estimated). In 1933—85 metric tons from 6 producing wells. In 1934 field abandoned. **Principal Lease Holder:** Polana-Ostre Co.

Rajskie (Oil)

Location: 19 miles southeast of city of Sanok and 14 miles southeast of oil field Tarnawa-Wielopole-Zagorz; mining district Drohobycz; administrative district: Lesko. **Discovery Data:** Oil seepages. First well drilled in 1883 by Golejowska. In 1886 production amounted to 640 barrels, one well producing. In 1895 production was 1960 barrels, 3 wells producing. **Geology:** Unsymmetrical fold inclined north in Oligocene Krosno beds. Southern productive limb dips 25°-30°. Northern limb is steep and broken. **Producing Formations:** Irregular horizons in Oligocene Krosno beds 980 to 1300 feet. Oil non-paraffine of average specific gravity 0.786 Gasoline content 48%. **Extent of Development:** About 22 tests including 8 failures drilled since 1884 to June 30, 1934. **Deepest Hole:** Well Michal, completed in 1906 at 2625 feet, with initial production 15 barrels daily from Lower Krosno beds. **Productive Area:** About 30 acres. **Production History:** Total amount of oil produced by field since 1886 to end 1933 is about 6000 barrels. From January 1, 1934, to June 30, 1934, about 1800 barrels. Present average daily production 8 barrels from 10 wells. **Present Activity:** One percussion rig running June 30, 1934. **Principal Lease Holder:** Rajskie Oil Company.

Rypne-Duba (Oil)

Location: 23 miles southwest of city of Stanislawow; 18 miles northwest of Bitkow oil field; 19 kilometers southeast of Dolina; mining district: Drohobycz; political administrative district: Dolina. **Discovery Data:** Oil seepages. First hand-dug well in 1786. First well drilled in 1887 by K. Blumenkron. In 1892 there were in Rypne 11 producers. In 1896 production was about 17,000 barrels from 28 wells. In 1904 all wells were shut down or abandoned. In 1907 drilling and production started again. **Geology:** Two folds of menilite series overturned north and overthrust by Eocene beds of marginal part of zone of slices of Skole. There are in the field two producing areas: the old field and the new one. On the one fold there are the wells of the old field and on the second fold are wells of the new field. **Producing Formations:** Three producing horizons in Oligocene Kliwa sandstones. Depth of wells: old field: 500 to 1000 feet; new field: 1600 to 3700 feet. Oil nonparaffin of specific gravity 0.838 to 0.841 (at 15°C). Gasoline content: 12.5 to 14.4%. **Extent of Development:** From 1912 to June 30, 1934: 133 producers and 7 failures, exclusive of 64 tests drilled in the old shallow field. **Deepest Hole:** Alfa Oil Co.'s Podlasie 18 in Duba, completed May, 1932, at 4293.5 feet, producing about 15 barrels daily from Kliwa sandstones. **Productive Area:** About 250 acres. **Production History:** Total amount of oil produced by field since 1887 to end of 1933, 1,760,000 barrels; from January 1, 1934, to June 30, 1934: 85,000 barrels. Present average daily production 440 barrels from 108 wells. **Present Activity:** Five cable tool rigs running June 30, 1934. **Principal Lease Holders:** Alfa Oil Company, Galician Carpathian Oil Company, Rypne Oil Company.

Schodnica (Oil)

Location: 4 miles south of oil field Boryslaw-Tustanowice-Mraznica; 10 kilometers southwest of Boryslaw city; mining district: Drohobycz; administrative district: Drohobycz. **Discovery Data:** Oil seepages. First well hand-dug in 1859 to 57 feet produced small quantity of oil. First drilled well completed in 1872 was Schwarzenberg-Londerhausen's Magdalena 1, completed at 161 meters for 27 barrels daily. Field's peak of production was between 1896 and 1900 when the annual yield was about 1 million barrels. **Geology:** Unsymmetrical anticline overturned northeast, on south extension of great transverse culmination of Boryslaw. **Producing Formations:** Several oil producing horizons in Upper and Lower Eocene sandstones, in Cretaceous Jamna sandstone and Inoceramus beds. Main producing horizon in Cretaceous Jamna sandstone of thickness of about 280 feet. Depth of wells 800 to 1800 feet. Oil nonparaffin of specific gravity 0.853 to 0.887. Gasoline content 19 to 24%. Paraffin 0.3 to 1%. Paraffin oil of specific gravity 0.808 to 0.834. Gasoline content 26 to 35%. Paraffin 3.5 to 6%. Oil nonparaffin is produced in eastern part, paraffin oil in western part of the field. **Extent of Development:** About 540 tests drilled since 1874 to June 30, 1934. Number of failures unknown. **Deepest Hole:** Gazy Ziemne Oil Co.'s Avanti 1, completed in 1929 at 3608 feet in Cretaceous Inoceramus beds, with initial production of about 15 barrels daily. **Productive Area:** About 430 acres. **Production History:** Total amount of oil produced by field from 1880 to end of 1933 is about 15,500,000 barrels. From January 1, 1934, to June 30, 1934: 140,200 barrels. Average daily production 780 barrels from 370 wells as of June 30, 1934. **Present Activity:** 1 cable tool rig running June 30, 1934. Since May 14, 1931, compressed air has been injected into the oil sand to restore the reservoir pressure. Air is compressed by two stage compressor of delivery capacity of about 4,500,000 cubic feet daily. Maximum discharge pressure of compressor is 500 pounds per square inch. Initially air was injected through two key wells, at present through 10 key wells. About 470,000 cubic feet of air daily is injected at pressures varying between 85 to 115 pounds per square inch. Additional oil produced from 31 wells influenced by injection of air is about 97,500 barrels, since the beginning of the process to June 30, 1934. Vacuum was applied to the oil wells many years before repressuring was started. Repressuring is carried out by Gazy Ziemne Oil Company and Galicja Oil Company. **Principal Lease Holders:** "Gazy Ziemne" Oil Company; "Galicia" Oil Company; P. Brzozowski and H. Winiarz Oil Company; Schodnica Spolka Naftowa; S. R. Backenroth.

Stankowa (Oil)

Location: Mining district of Drohobycz; administrative district of Lesko; data on field included with "Paszowa-Ropienka-Wankowa," which see.

Strazelbice (Oil)

Location: 4½ miles southwest of city of Sambor; mining district: Drohobycz; administrative district: Sambor. **Discovery Data:** Oil seepages. First wells were

EUROPE—Poland—*Continued*

drilled and dug in 1880. In 1881 there were 10 wells, 1 drilled and 9 dug by hand. Six of them were oil producers. Depth of wells from 150 to 1000 feet. Initial production of these wells was very small. Maximum of oil production was in 1896, about 22,500 barrels yearly from 17 wells. **Geology:** Unsymmetric fold (monocline). Oil produced only on southern flank in upper beds of Upper Cretaceous Jamna sandstone. **Producing Formations:** Oil is produced from upper beds of Jamna sandstones. Only one horizon, found at from 250 to 1300 feet, according to position on structure. Paraffin base oil; specific gravity 0.862 to 0.872. **Extent of Development:** About 100 wells drilled from 1881 to June 30, 1934. These include 12 failures. **Deepest Hole:** Limanowa Oil Company's No. 37, dry, abandoned 1913 at 2034 feet in Eocene shales. **Productive Area:** About 45 acres. Field is defined on south and north. **Production History:** Total amount of oil produced by field from 1886 to the end of 1933, about 542,000 barrels. From January 1, 1934, to June 30, 1934: 10,500 barrels. Daily average, 60 barrels per day from 38 wells as of June 30, 1934. Specific gravity of oil, 0.862 to 0.872. **Present Activity:** None. Air injection (repressuring) started on March 28, 1934. To the present, no increase of oil production has been observed. **Principal Lease Holders:** Limanowa Oil Company: Zofja Oil Company.

Urycz (Oil)

Location: Five miles south of oil field Boryslaw-Tustanowice-Mraznica; mining district of Drohobycz; political district of Drohobycz. **Discovery Data:** In 1889 two wells hand-dug. First well drilled in 1891. In 1895 production 300 barrels from Gartenberg, Schreier & Co.'s No. 1, the discovery well. The highest production of the field was in 1901, about 380,000 barrels. In 1901 there were 103 wells producing and in drilling. **Geology:** Urycz is geologically the southeast extension of the oil field Schodnica. Geological conditions are the same as in Schodnica, which see. **Producing Formations:** At some points production is obtained from Upper Eocene sands. The main producing horizon is in Cretaceous Jamna sandstone at 980 to 1650 feet. Lower Inoceramus beds not yet explored. Oil non-paraffin; specific gravity, 0.872 to 0.887 at 15°C. **Extent of Development:** About 190 tests drilled from 1891 to June 30, 1934. Number of failures not known. **Deepest Hole:** Well 120, drilled by Urycka Spolka Naftowa's No. 84, abandoned at 1115 meters in 1904. **Productive Area:** About 200 acres. **Production History:** Total amount of oil produced by field from 1895 to end of 1933—3,275,000 barrels. From January 1, 1934, to June 30, 1934—29,200 barrels. Average production 170 barrels from 137 wells, as of June 30, 1934. **Present Activity:** No drilling as of June 30, 1934. **Principal Lease Holders:** Urycka Spolka Naftowa; Gazy Ziemne Oil Company; and Schodnicka Spolka Naftowa. **Remarks:** Repressuring. Since January 15, 1933, compressed air has been injected into the oil sand through two key wells. The increase in daily production, due to pressure restoration, of 12 surrounding wells (influenced by injection of air) was about 19 barrels. To June 30, 1934, about 46,164,000 cubic feet of air at the pressures from 40 to 60 pounds per square inch have been injected.

Zagorz-Tarnawa-Wielopole (Oil)

Location: 5½ miles southeast of city of Sanok and 3 miles west of city of Lesgo; mining district of Drohobycz; administrative district of Lesko and Sanok. **Discovery Data:** Surface indications and favorable geologic structure. First discovery well drilled in Zagorz in 1885, produced small quantities of oil. In Tarnawa Dolna first discovery well was completed in 1900 by Schodnica Oil Co., flowing initially about 106 barrels daily from 1420 feet in Oligocene Lower Krosno beds. The highest production of the field was in 1905 (about 240,000 barrels from 24 wells.). **Geology:** Two narrow, parallel folds in Oligocene Krosno beds. Northern fold extends over localities of Zagorz, Wielopole and Wola Postolowa, southern fold extends over the localities of Zagorz, Wielopole, Tarnawa Dolna to Wola Postolowa. The results obtained on southern fold were better than on the northern one. Well No. 2 in Zagorz produced during two years (1905 to 1907) about 110,000 barrels from 1160 to 2338 feet in Lower Krosno beds. **Producing Formations:** Three oil producing horizons in Oligocene Lower Krosno beds at 1150 to 2600 feet. Average specific gravity of oil: Zagorz, 0.9072; Weilopole, 0.8599; Tarnawa Dolna, 0.8255. Oil is asphalt base. Gasoline content: oil of Wielopole 32%, oil of Zagorz 20%. **Extent of Development:** On northern fold in Zagorz about 37 wells drilled since 1885 to June 30, 1934. On southern fold in Wielopole-Tarnawa Dolna about 53 wells drilled since 1900 to June 30, 1934; 12 are known to have been failures. **Deepest Hole:** Schodnica Oil Co.'s well No. 9 in Tarnawa Dolna. Drilling stopped at 4132 feet in Menilite (?) slates. At 2550 feet it produced initially about 180 barrels daily. **Productive Area:** About 440 acres on two folds. **Production History:** Total amount of oil produced by field from 1885 to end of 1933 about 1,140,000 barrels. From January 1, 1934 to June 30, 1934, about 610 barrels. Present average daily production only 3 barrels from one well, in Tarnawa Dolna. **Present Activity:** None at present. In southeast extension of the field in Wola Postolowa a wildcat, "Izabella," of "Polmintar" Oil Co., has temporarily stopped drilling at 2394 feet in Krosno beds. **Principal Lease Holders:** "Tarnawa" Oil Company; "Polmintar" Oil Company.

Jaslo District

Biecz (Oil)

Location: 9 miles west of city Jaslo; mining district: Jaslo; administrative district: Gorlice. **Discovery Data:** Oil seepages. First well drilled in 1887 by Miskiewicz Oil Company, produced small quantities of oil from 240 feet. **Geology:** Fold inclined north, broken by longitudinal fault. **Producing Formations:** Eocene Ciezkowice and Cretaceous sandstones. One to three producing horizons, at some points four, at 650 to 2050 feet. Oil non-paraffin of specific gravity 0.802 to 0.829. Gasoline content 24 to 42 percent, sandstones from 10 to 20 meters thick. **Extent of Development:** 40 wells drilled since discovery of the field to June 30, 1934. About 30 percent of drilled wells were failures. **Deepest Hole:** No. 7 drilled by Wladyslaw Dlugosz Oil Company. Dry, abandoned June 16, 1919, at 2660 feet in Cretaceous shales. **Productive Area:** About 55 acres in October, 1934. **Production History:** Total production of oil since 1897 to the end of 1933, about 261,000 barrels. From January 1, 1934, to June 30, 1934, is 14,235 barrels. Present average daily production 75 barrels from 28 wells. June 30, 1934. **Present Activity:** One well drilling by percussion method. **Principal Lease Holders:** Wladyslaw Dlugosz Oil Company, "Horta" Oil Company, and "Jednosc" Oil Company.

Bobrka-Wietrzno-Rowne-Rogi (Oil)

Location: 6 miles south of the city Krosno. Administrative district: Krosno. Mining district: Jaslo. **Discovery Data:** Oil seepages. The first wells were hand-dug in 1850, by Ignacy Lukasiewicz. The first well in Bobrka was drilled by cable tools in 1874 to the depth of 1000 feet. In Wietrzeno first well was drilled by a Canadian, William Henry MacGarvey, in 1883, in Rowne, first wells were dug in 1888. **Geology:** Anticline, inclined north, refolded at some points and broken by many transversal faults. Structure is about 25 miles long. **Producing Formations:** In western part of the field oil produced from Cretaceous and Eocene Ciezkowice sandstones, in eastern part only from Eocene Ciezkowice sandstones. There are four producing oil sands, three in Eocene and one (the lowest)

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in Cretaceous at 1000 to 3710 feet. Thickness of sandstone series 1—400 feet, Series 2—150 feet, Series 3—150 feet, Series 4—unknown. Gravities of oils range from 0.840 to 0.890. Both paraffin and non-paraffin oil produced. **Extent of Development:** About 250 tests drilled since 1874 to June 30, 1934. **Deepest Hole:** Naphtha Oil Company's well No. 10, in Rogi (Klarowiec) dry, abandoned in April, 1929, at 4028 feet in Cretaceous. Situated south of the well No. 4, which produced initially about 4500 barrels daily at 3034 feet. Total yield of this well since 1904 to the end of 1933 is about 600,000 barrels. **Productive Area:** About 200 acres in October, 1934. **Production History:** Total amount of oil produced by field since 1874 to the end of 1933 is about 5,300,000 barrels. From January 1, 1934, to June 30, 1934, 36,260 barrels. Average daily production 195 barrels, from 76 wells as of June 30, 1934. **Present Activity:** 3 wells drilling by cable tools. April 5, 1934, repressuring started. Gas is injected into the sand through one key well. Up to the present no increase in oil production has been observed. **Principal Lease Holders:** Naphtha Oil Company, Alma Oil Company, Galician Carpathian Oil Company, Pollon Oil Company.

Gorki-Strachocina (Gas)

Location: 6 miles northwest of city Sanok and three miles southwest of oil field Humniska-Grabownica Starzenska; Mining district: Jaslo; Administrative district: Brzozow and Sanok. **Discovery Data:** Oil and gas seepages and old wildcats drilled in Gorki and in Strachocina. One wildcat drilled 1899 in Strachocina by William Henry MacGarvey had showings of oil and large quantities of gas at 2296 feet. This well was abandoned because of a too small diameter of borehole. September 8, 1928, was completed by Galicia Oil Company Strachocina 1; initial production, 5 million cubic feet of gas daily from 2601 feet. Initial shut-in pressure was 1350 pounds per square inch. May 11, 1930, was completed second well Strachocina 2, with initial production about 5 million cubic feet of gas daily from 2620 feet. **Geology:** Two parallel folds. Gas well, "Strachocina 1," is situated on southern fold; Strachocina 2, on the northern fold, about 2000 feet from well Strachocina 1. Gorki-Strachocina field is the southeast extension of the oil field Zmiennica-Turzepole. Two folds are separated by a narrow syncline. **Producing Formations:** At present only one producing horizon in Cretaceous sandstones (sandstones of Czarnorzeki) at 2600 feet. Lower Cretaceous beds not explored. In Eocene, Ciezkowice sandstones, there were only showings of oil and gas at 1300 and 1670 feet. Czarnorzeki depth in Strachocina section of field: 780 to 796 meters; in Gorki section, 1218 meters (average). **Extent of Development:** 12 tests drilled since 1899 to June 30, 1934: 4 gas producers, 8 dry. **Deepest Hole:** Polmin Oil Company (Polish State Oil Company) wildcat Gorki 1, about three miles northwest of the field Strachocina, completed August 20, 1934, at 3995 feet in Cretaceous Czarnorzeki sandstones with initial production of about 3 million cubic feet of gas daily. Shut-in pressure 1310 pounds per square inch. **Productive Area:** Area proved for gas production about 600 acres in October, 1934. **Production History:** Total amount of gas produced by field since 1928 to end of 1933 is about 468 million cubic feet. From January 1, 1934, to June 30, 1934, about 25 million cubic feet. Present average daily production about 88,000 cubic feet of gas. (June 30, 1934). Small amount of gas is produced at present. There is no gas pipe line yet. There is only a short four-inch gas pipe line from Strachocina to the oil field in Grabownica Starzenska, where gas is used as fuel and for gas lift wells. **Present Activity:** One wildcat drilling in June, 1934, was completed August 20, 1934. (See Deepest Hole). Cable tools are used. **Principal Lease Holders:** Galicia Oil Company; Polmin Oil Company (Polish State Oil Company); Malopolska Oil Company.

Gorlice (Oil)

Location: One mile northwest of city of Gorlice; mining district: Jaslo; administrative district: Gorlice; 5 miles west of oil field Kobylanka-Kryg-Lipinki. **Discovery Data:** Oil seepages. First discovery well: Magdalena 1, completed November, 1931, by Minerwa Oil Company at 360 feet in Oligocene sandstones (menilite beds) producing initially about 2 barrels daily. **Geology:** Unsymmetric fold in front of marginal part of Magura zone. **Producing Formations:** Two producing horizons in Oligocene sandstones (menilite slates) and Eocene (Ciezkowice) sandstones. First horizon produces oil, second only gas. Oil is non-paraffin base. Specific gravity, 0.850. **Extent of Development:** 7 wells drilled since discovery of the field to June 30, 1934: 6 oil producers, only 1 gas well. **Deepest Hole:** Minerwa Oil Company's Magdalena 2, completed March, 1932, at 1070 feet in Eocene (Ciezkowice) sandstone, producing initially about 600,000 cubic feet of gas daily. Later deepened to 1450 feet. Temporarily shutdown. **Productive Area:** At present about 10 acres. **Production History:** Total production from 1931 to end of 1933, about 1600 barrels of oil and about 53 million cubic feet of gas. From January 1, 1934, to June 30, 1934: 750 barrels oil. Present average daily production about 4 barrels from 5 wells. **Present Activity:** One percussion rig running June 30, 1934. **Principal Lease Holders:** Minerwa Oil Company.

Grabownica-Humniska (Oil and Gas)

Location: 18 kilometers northwest Sanok, 25 kilometers east Krosno, district (Wojewodztwo) Lwow; mining district: Jaslo; see also Stara Wiez. **Discovery Data:** Oil seepages C-ie Austro-Belge des Petroles No. 1, completed in 1896 at 450 meters; gusher, no initial production estimate. In 1898, 5 wells were drilling, 2 wells producing. **Geology:** A long, narrow, unsymmetrical fold, inclined northeast, broken by several faults. The productive southwestern limb dips 70-80°, the northeastern limb almost vertical. **Producing Formations:** Two main oil-bearing horizons in sandstones of Upper Cretaceous age at 500-700 meters. The third horizon at 900-1000 meters. Gravity of oil, first horizon, 0.822 (gasoline about 35 percent, non-paraffin); of second horizon, heavier, paraffin. **Extent of Development:** 73 tests, including 4 failures up to June 30, 1934. **Deepest Hole:** Grabownica Company's August, 1081 meters, completed in 1933 for 1½ metric tons daily. Cretaceous oil. **Productive Area:** Approximately 50 hectares. **Production History:** from discovery to end of 1933: 199,060 metric tons; first 6 months of 1934: 7350 tons. Average daily production (as of June 30, 1934), 35 tons of oil and 25.5 cubic meters per min. of gas. 37 producing wells. **Present Activity:** 10 cable tool rigs. **Principal Lease Holders:** Galicja Company, and Grabownica Company.

Harklowa-Pagorzyna-Wojtowa (Oil)

Location: 7 miles southwest of city Jaslo; mining district: Jaslo; administrative district: Jaslo. **Discovery Data:** Oil seepages. Mine existed in 1860. First wells drilled in 1871 by the Dzwonkowski Oil Company. In Wojtowa first wells were hand-dug in 1864, to the depth from 150 to 300 feet. In 1874 there were in Wojtowa 112 oil wells producing about 11,000 barrels yearly. In Harklowa in 1874 there were 24 oil wells yielding about 6750 barrels yearly. **Geology:** Anticline, inclined north; flank dip: 25 to 30 degrees; at Harklowa and Pagorzyna an overthrust from south below the Magura cover. **Producing Formations:** In Harklowa oil is produced from Oligocene (Krosno beds) at 500 to 3000 feet. Thickness of sandstones: 50 to 60 meters, with few soft oil sands 2 to 3 meters thick. In Pagorzyna-Wojtowa oil sands in Oligocene (Krosno beds) and in Eocene at 350 to 2800 feet. Non-paraffin base oil of specific gravity 0.885 to 0.902. Paraffin content 0.5 percent. Gasoline 9-12 percent. Krosno beds show 10 per-

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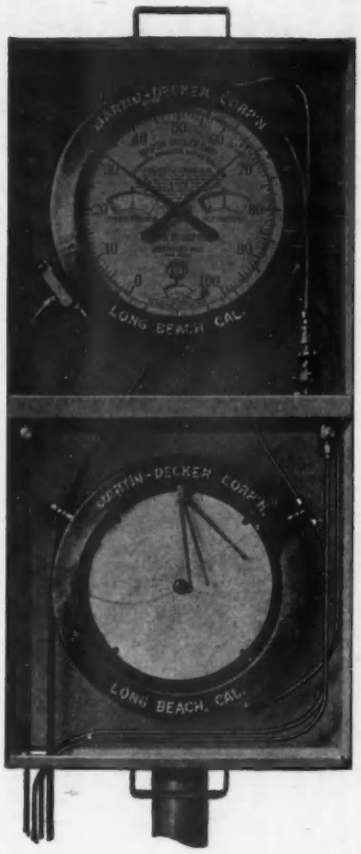

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cent asphalt. **Extent of Development:** 253 wells drilled from 1871 to June 30, 1934, 238 oil producers, 1 gas well, 14 dry holes. **Deepest Hole:** Harklowa Oil Company's No. 132, dry, abandoned July, 1911, at 4201 feet in Oligocene (Krosno) beds. Situated north of the producing area. **Productive Area:** Area proved for oil production approximately 125 acres. **Production History:** Total amount of oil produced from 1877 to the end 1933 is about 1,800,000 barrels. From January 1, 1934, to June 30, 1934: 33,575 barrels. Present average daily production about 180 barrels from 136 wells as of June 30, 1934. **Present Activity:** Two wells drilling June 30, 1934. Cable tools. Planned repressuring. **Principal Lease Holders:** Harklowa Oil Company; Ropita Oil Company, and Malopolska.

Iwonicz-Klimkowka (Northern Anticline) (Oil)

Location: 9 miles south of city Krosno; five miles east of oil field Bobrka-Wietrzno-Rowne-Rogi; mining district: Jaslo; administrative district: Krosno. **Discovery Data:** Oil seepages and shallow hand-dug wells. First wells drilled in 1890, by William Henry MacGarvey. Depth of wells 460 to 1135 feet. In 1894 production about 1400 barrels. Carpathian Geological Institute says K. Lewakowski was the first drilled and that 6 wells were drilled in 1890. **Geology:** Two narrow, parallel folds in Oligocene (Krosno) beds and menilite slates. In localities of Iwonicz-Klimkowka there are three parallel anticlines (folds). Southern anticline extends over Lubatowka-Iwonicz-Klimkowka-Wulka-Rymanow, which are producing. Middle anticline is the eastern extension of the anticline of Bobrka-Wietrzno-Rowne-Rogi, and is not productive in Iwonicz and Klimkowka at present. Northern anticline extending over localities of Rogi-Iwonicz-Klimkowka-Rymanow-Glebokie is productive only in Iwonicz and Klimkowka. **Producing Formations:** Three producing horizons in Oligocene sandstones (menilite beds) at 450 to 2400 feet. Oil produced is asphaltic base. Average specific gravity: 0.880. **Extent of Development:** About 45 tests drilled since 1890 to June 30, 1934: 18 dry, 27 oil producers. **Deepest Hole:** "Minia 1," drilled in Klimkowka by Gartenberg and Schreier Oil Company in 1913 to 2378 feet in Oligocene menilite beds. At present producing about one barrel of oil daily. **Productive Area:** About 30 acres in October, 1934. **Production History:** Total amount of oil produced by field since 1890 to end of 1933 estimated about 40,000 barrels. From January 1, 1934, to June 30, 1934: about 560 barrels. Present average daily production about 4 barrels from 10 wells. **Present Activity:** One percussion rig running June 30, 1934. **Principal Lease Holders:** "Ostoja" Oil Company, "Herax" Oil Company, "Atlanta" Oil Company.

Iwonicz-Klimkowka-Wulka (Southern Anticline) (Oil)

Location: 9 miles south of city of Krosno; mining district: Jaslo; administrative districts: Krosno and Sanok. **Discovery Data:** Oil and gas seepages Natural gas seepage named "Belkotka" known two hundred years ago. First wells drilled in Iwonicz in 1888. In Klimkowka first well was completed in 1912 by Klimkowka Tow. Naft with initial production about 70 barrels daily at 1508 feet. In Wulka first well completed in 1912 produced initially 187 barrels daily at 918 feet. **Geology:** Unsymmetrical fold inclined north. Fold axis is most culminated in Wulka and Klimkowka. Broken by transverse faults. **Producing Formations:** Three producing horizons in Eocene (Ciezkowice) sandstones at 820 to 1840 feet. These are from 40 to 180 meters under the red slates. Oil produced in Klimkowka-Wulka is 0.908 to 0.864 specific gravity; in Iwonicz, 0.950 to 0.780. First producing sand 0.920 to 0.950, second, 0.780 to 0.790, third, 0.820 to 0.850. Oil produced in Iwonicz and Klimkowka-Wulka is non-paraffinous. **Extent of Development:** About 75 wells drilled since discovery of the field to June 30, 1934. Karpackie says that during same period in the Klimkowka-Wulka section 60 tests, including 6 failures, have been drilled. **Deepest Hole:** Galician Carpathian Oil Company's wildcat, drilled in Lubatowka, west of Iwonicz, dry, abandoned May 7, 1918, at 2558 feet in Upper Cretaceous (?) beds. **Productive Area:** About 185 acres as of June 30, 1934. **Production History:** Total amount of oil produced by field from discovery to end of 1933 is about 960,000 barrels. From January 1, 1934, to June 30, 1934, 16,200 barrels. Average daily production: 87 barrels from 60 wells as of June 30, 1934. **Present Activity:** Several wells being deepened June 30, 1934. 5 cable tool rigs running. **Principal Lease Holders:** Galician Carpathian Oil Company; Count Jozef and Emma Zaluscy; Crescat Oil Company; Ostoja Oil Company; Lenartowicz and Rylscy.

Kleczany-Trzetrazewina (Oil)

Location: 6 miles northwest of city of Nowy Sacz; mining district: Jaslo; administrative district: Nowy Sacz. **Discovery Data:** First production in 1858 from hand-dug shallow wells by Baron Maurice Brunicki and Eugene Zielinski. In 1859 there were about 20 shallow hand-dug wells from 25 to 70 feet producing about 1000 barrels of oil of specific gravity 0.860 to 0.875. First well in Kleczany was drilled by Albert Fauck in 1865 by cable tools. Oil produced in Kleczany was refined in one small refinery built by Eugene Zielinski on the lease in 1864. The highest production of oil in Kleczany was in 1897, about 6350 barrels from 67 wells. **Geology:** Two unsymmetrical folds below Magura cover about 7 miles long. Kleczany, according to Bohdanowicz, is "one complex of a series supposed to be overthrust on facies of Median Zone. Field is on a marginal part of Magura unit." **Producing Formations:** Two or three producing horizons at 300 to 1600 feet in Cretaceous (Ropianka) beds. Lower Cretaceous sands not sufficiently explored. Oil produced in Kleczany is of very high quality, containing 15 to 20 percent of vaseline and 22 to 43 percent of gasoline. Specific gravity of oil 0.779 to 0.870. Average depth of completions in 1932 was 200 meters. **Extent of Development:** 161 wells drilled since discovery of the field to June 30, 1934. **Deepest Hole:** Kleczany Oil Company's No. 159, dry, abandoned July 7, 1906, at 1968 feet in Cretaceous (Ropianka) (?) beds. **Productive Area:** Approximately 75 acres in June, 1934. **Production History:** Total amount of oil produced by field from 1859 to end of 1933 about 137,000 barrels. From January 1, 1934, to June 30, 1934: 110 barrels. Average daily production only about one barrel from 11 wells as of June 30, 1934. **Present Activity:** None in June, 1934. **Principal Lease Holders:** "Kleczany" Oil Company; "Nafta Boryslawska" Oil Company.

Kobylanka-Kryg-Lipinki (Oil)

Location: 4½ miles east of the city of Gorlice. Oil field extends over localities of Dominikowice, Kobylanka, Kryg, Libusza and Lipinki; mining district: Jaslo; administrative (political) district: Gorlice. **Discovery Data:** Oil seepages. First production in 1865 from shallow hand-dug wells, 50 to 60 meters deep. Four of these wells are now producing small quantities of oil (½ to 1 barrel daily from 165 to 200 feet). In 1875: 55 hand-dug wells produced about 22,000 barrels. In 1880, 165 hand-dug wells produced 22,000 barrels. First well was drilled in 1885 to depth of about 150 meters. **Geology:** 1 large fold in front of marginal part of Magura zone. **Producing Formations:** Five producing horizons. First, shallow in Oligocene, Krosno, beds of Magura zone, of very small importance. Second and third in Eocene, Ciezkowice, sandstones at 500 to 1000 feet. Fourth and fifth horizon in sandstones of Upper Cretaceous at 1000 to 2500 feet. Oil from Oligocene, Krosno beds is of specific gravity 0.910; from Eocene, Ciezkowice, standstones average 0.860; from Cretaceous 0.834. Paraffin content of Eocene oil about 6 percent. **Extent of Development:** About 660 tons drilled since 1885 to June 30, 1934; 54 of these were failures. **Deepest Hole:** Galician Carpathian Oil Company's No. 9, in Kobylanka. Drilling stopped April 28, 1908, at 3326 feet in Cretaceous. Had showings of oil and gas. **Productive**

EUROPE—Poland—*Continued*

Area: Estimated in June, 1934, at approximately 1060 acres. Field is defined only on north. **Production History:** Total amount of oil production by field from 1874 to end of 1933, is about 3,800,000 barrels. From January 1, 1934, to June 30, 1934: 66,000 barrels. Average daily production: 382 barrels from 381 wells as of June 30, 1934. **Present Activity:** 10 wells drilled at present, drilling by percussion method. Cable tool portable rigs used for shallow drilling. Since June 5, 1930, air has been injected into the oil sand through four key wells by B. Doregger Oil Company in Lipinki. About 20,000 cubic feet of air is injected daily at the pressure of about 450 pounds per square inch. Since June 5, 1930, to June 30, 1934, about 251 million cubic feet of air was injected. Air injection increased production of 13 surrounding wells from 23 to 42 barrels daily. In Lipinki underground oil mining is planned. **Principal Lease Holders:** Galician Carpathian Oil Company; Premier Oil Company; Bernard Dorreger, Faworyt Oil Company; Gartenberg and Schreier Oil Company; Jakob Schmer; Franciszek Rziha; Kryg Oil Company; Pollon Oil Company; Barcia Steczkowscy.

Kobylany (Oil)

Location: 7 miles southwest of city of Krosno; about 4 miles west of Bobrka-Wietrzno-Rowne-Rogi oil field; mining district: Jaslo; administrative district: Krosno. **Discovery Data:** Oil seepages. First wells drilled in 1887. Production was about 3500 barrels from 5 wells. The highest production of the field was in 1902, about 8270 barrels. From 1908 to 1917 all wells were shut down. **Geology:** Fold, inclined north, refolded at some points and broken by two transverse faults. **Producing Formations:** One producing horizon in Ciezkowice sandstones of Eocene at 750 to 1215 feet. Oil non-paraffin base. Specific gravity, 0.855. **Extent of Development:** From 1887 to June 30, 1934: 12 oil producers and 13 dry holes. **Deepest Hole:** About 2130 feet, dry, abandoned. **Productive Area:** Estimated about 15 acres in June, 1934. **Production History:** Total production of the field from 1887 to end 1933 about 108,000 barrels. From January 1, 1934, to June 30, 1934: 1200 barrels. Average daily production about 6 barrels from 10 wells as of June 30, 1934. **Present Activity:** No drilling June 30, 1934. **Principal Lease Holders:** Wit Sulimirski.

Kroscienko Nizne-Krosno (Oil)

Location: 1 mile north of city of Krosno; mining district: Jaslo; administrative district: Krosno. **Discovery Data:** Surface indications and oil seepages. First wells were drilled in 1888 simultaneously by Hannoverian Oil Company, Naphta Oil Company and Baron Louis Graeve. Of 11 of early drilled wells, 7 were dry and 4 producers. In 1889 production was about 3680 barrels. In 1898 production was 48,800 barrels from 6 wells. Early wells were abandoned. **Geology:** Fold inclined north, refolded into three minor folds, broken by transverse faults into separate blocks. Fold of Kroscienko Nizne—Krosno is the east extension of the anticline of Potok. The fold is of Oligocene-Eocene beds with Cretaceous in the core. Flanks characterized by steep dip. **Producing Formations:** In Kroscienko Nizne two producing horizons in Eocene, Ciezkowice sandstones, at 1000 to 2250 feet. In Krosno at present only one producing horizon in Eocene, Ciezkowice sandstone, at 700 to 1500 feet. Specific gravity of oil: Krosno-non-paraffine 0.888; Kroscienko Nizne—western part, oil nonparaffin 0.915; Kroscienko Nizne, eastern part, oil nonparaffine 0.882, paraffine oil 0.860. Gasoline content 10%. The oil bearing zone is about 4 kilometers long and 200 meters wide. **Extent of Development:** About 106 tests drilled from 1888 to the end 1933; 20 of them were dry. **Deepest Hole:** Galician Carpathian Oil Co.'s Arnold 8 in Kroscienko Wyzne, completed October 10, 1929, at 2935 feet in Eocene shales. Several oil and gas showings between 650 and 2265 feet. This well is now producing small quantities of oil from 1558 feet. **Productive Area:** Estimated at about 87 acres in June, 1934. **Production History:** Total production of oil from 1888 to the end 1933: about 1,550,000 barrels; from January 1, 1934, to June 30, 1934: 10,220 barrels. Average daily production, about 100 barrels from 46 wells as of June, 1934. **Present Activity:** 2 cable tool rigs running in June, 1934. **Principal Lease Holders:** Galician Carpathian Oil Company; "Galicia" Oil Company; Nawag.

Mecinka-Brzezowka-Roztoki (Oil and Gas)

Note: Includes also Jaszczew, Bialkowka, Sadkowa and Dubrokowa. **Location:** 6 miles west of city of Krosno and 3½ miles east of Jaslo; mining district: Jaslo; administrative districts: Krosno and Jaslo. **Discovery Data:** First discovery well was completed May 26, 1909 in Brzezowka by "Syndicate Winnica" at 2570 feet in Eocene Ciezkowice sandstones producing daily about 1,300,000 cubic feet of gas. Winnica 2 or Malgorzata 2, completed August 4, 1914, produced initially about 12 millions cubic feet of gas daily at 2430 feet. The estimated total gas production of this well from 1914 to the end 1933, is about 21,000,000,000 cubic feet. **Geology:** Great fold eight miles long inclined north, refolded into three minor folds and broken by transverse faults into separate blocks. This fold is the west extension of the anticline of Potok. The fold extends over the localities: Jaszczew, Mecinka, Bialkowka, Brzezowka, Dobrucowa, Sadkowa, Roztoki, Hankowka, Sobniow. It is about 7 kilometers long. Limbs are steep. **Producing Formations:** In Jaszczew, Mecinka, Bialkowka, Brzezowka two oil and gas producing horizons; first in Eocene Ciezkowice sandstones at 2400 to 2950 feet; second in Cretaceous sands at 3300 to 3800 feet. In Dobrucowa, Sadkowa and Roztoki at present one producing horizon at 2950 to 3330 feet in Eocene Ciezkowice sandstones. In eastern part of the field in Jaszczew, Mecinka, Bialkowka, Brzezowka gas and oil is produced; in western part in Sadkowa and Roztoki only gas. Oil produced in Jaszczew and Mecinka is paraffin. Specific gravity: 0.820 to 0.840. **Extent of Development:** From 1909 to June 30, 1934: 7 dry holes, 23 gas producers, 10 producing oil and gas, 5 oil only. **Deepest Hole:** Belarm 1, wildcat drilled by Compagnie Liegeoise des Petroles in Sobniow, near Jaslo. Drilling stopped December, 1931, at 4360 feet in Eocene red and green shales because of severe fishing job. Encountered several oil and gas showings. **Productive Area:** As of July, 1934: area for oil and gas production about 75 acres. Only for gas production, about 300 acres. Field extends to the west to Sobniow near Jaslo. Probable area for gas production very large. **Remarks:** From Roztoki natural gas is transmitted by a 10-inch gas pipeline 48 miles long to Polish State Nitrogen Works in Moscice near Tarnow. The capacity of pipeline is about 6 millions cubic feet of gas daily at 170 pounds per square inch inlet pressure and delivery pressure about 20 pounds. **Production History:** Total amount of gas produced from discovery of the field (1909) to end of 1933 is about 58,068,000,000 cubic feet. Total production of oil to end of 1933: 189,000 barreles. Production from January 1, 1934 to June 30, 1934: gas: 1,391,000,000 cubic feet; oil: 19,500 barrels. Present average daily production (June 30, 1934): gas about 7,900,000 cubic feet, from 17 wells. Oil 110 barrels from 13 wells. Number of all producing wells 30. **Present Activity:** 5 cable tools running. Shut-in pressure in gas wells in Roztoki about 1620 pounds per square inch. Polmin Oil Co.'s well No. 4 in Roztoki, completed June, 1934, with initial production of 7,600,000 cubic feet in Eocene Ciezkowice sandstone. Shut-in presssure about 1620 pounds per square inch. **Principal Lease Holders:** "Polmin" Polish State Oil Company, Galician-Carpathian Oil Company; "Malopolska" Oil Company; "Nafta Boryslawska w Polsce" Oil Company; "Jaslo-Jaszczew" Oil Company.

EUROPE—Poland—*Continued*

Mecina Wielka (Oil)

Location: About 6 miles southeast of city of Gorlice; mining district: Jaslo; administrative district: Gorlice. **Discovery Data:** In 1875 there were in Mecina Wielka 25 oil companies and 281 shallow hand-dug and hand-drilled wells, producing about 11,800 barrels yearly from 50 to 170 feet. In 1898 production was about 2370 barrels. Other data not available. **Geology:** Fold in front of marginal part of Magura zone; one complex of series supposed to be overthrust on facies of Median zone. **Producing Formations:** Three producing horizons at 350 to 1000 feet in Cretaceous Upper Ropianka beds. Oil nonparaffin base. Specific gravity, 0.830 to 0.860. First horizon: 0.830 specific gravity; second, 0.845; third, 0.853; gasoline content about 29%. **Extent of Development:** About 150 wells drilled from discovery of field to June 30, 1934. **Deepest Hole:** Galician Carpathian Oil Co.'s well abandoned at 2624 feet, Lower Ropianka beds of the Cretaceous. **Productive Area:** Estimated at about 30 acres June 30, 1934. **Production History:** Total production from 1870 to end of 1933 estimated at 100,000 barrels. From January 1, 1934, to June 30, 1934, about 2170 barrels. Average daily production: 18 barrels from 13 wells as of June 30, 1934. **Present Activity:** One percussion rig running in June, 1934. **Principal Lease Holders:** "Slaskie Towarzystwo Naftowe."

Mokre (Oil)

Location: 10 miles south of city of Sanok; 10 kilometers southwest of Zagorz; mining district: Jaslo; administrative district: Sanok. **Discovery Data:** Oil and gas seepages. First discovery well completed 1914 producing initially 21 barrels daily at 1500 feet in Oligocene Lower Krosno beds. Karpackie says first well was "Stefani; completed by Malopolski Przemysl Naftowy in 1912 at 501 meters," and that it produced about "200 tons in first year." **Geology:** A narrow, unsymmetrical anticline of Krosno beds inclined northeast. Dip of southwestern productive limb, 40 to 50 degrees; northeast limb very steep and not productive. **Producing Formations:** Three minor oil producing horizons at 650 to 1650 feet in sandstones of Oligocene Krosno beds. Oil nonparaffin, very light specific gravity (0.808 to 0.813). Gasoline content 45%. Oil from Well Henryk 3 is of specific gravity 0.872. **Extent of Development:** 14 wells drilled from 1912 to June 30, 1934, all oil producers originally. Two wells abandoned, one flooded, the other because of a severe fishing job. **Deepest Hole:** Well "Roma 1" produced small quantities of oil in 1923. Abandoned at 2165 feet in lower Oligocene Krosno beds. Located 1½ kilometers from producing wells. **Productive Area:** About 27 acres. **Production History:** Total oil production from 1912 to the end 1933 about 41,770 barrels. From January 1, 1934, to June 30, 1934: 1560 barrels. Average daily production about 12 barrels from 11 wells as of June 30, 1934. **Present Activity:** One percussion rig operating in July, 1934. **Principal Lease Holders:** Henry Stiefel.

Potok-Toroszowka (Oil)

Location: 4 miles west of city of Krosno; mining district of Jaslo; administrative district: Krosno. **Discovery Data:** Surface indications. Discovery well No. 12, was completed 1891 by Hannoverian Oil Company flowing about 70 barrels daily from 790 feet. Large quantities of gas were produced with oil in first drilled wells. First gusher was Klobassa & Co.'s No. 1, completed at 557 meters depth in 1892. **Geology:** Great fold inclined north, refolded into 4 minor folds and broken by transverse faults into separate blocks, some already flooded. Steep dips characterize the Oligocene-Eocene beds which have an Upper Cretaceous core. **Producing Formations:** Two oil and gas producing horizons in Eocene Ciezkowice sandstones, at 265 to 1400 feet in Toroszowka and at 1150 to 2500 feet in Potok. Oil is nonparaffin base. Average specific gravity is 0.822. Specific gravity at Potok, 0.800 to 0.828; at Toroszowka, 0.795 to 0.828. Gasoline content: Potok oil 37%, Toroszowka oil 54%. **Extent of Development:** About 227 wells drilled since discovery of the field to June 30, 1934. Of these 56 were failures. **Deepest Hole:** "Malopolska" Oil Company's Balbina, dry, abandoned August, 1931, at 3267 feet, located nearly a half mile to the south of the oil producing area. Drilling was stopped in Lower Eocene because edge water was encountered. **Productive Area:** Extent of area proved for oil production is about 270 acres. **Production History:** Total amount of oil produced by field from discovery to end of 1933 is about 4,990,000 barrels. From January 1, 1934, to June 30, 1934, 45,326 barrels. Average daily production 242 barrels, from 64 wells as of June 30, 1934. **Present Activity:** 2 cable tool rigs running. Since February 15, 1932, natural gas has been injected into the oil sand through two key wells. About 350,000 cubic feet is injected daily at the pressure of 160 pounds per square inch. From February 15, 1932 to June 30, 1934, about 213 millions cubic feet of gas was injected. The increased production of oil on the repressured area from the beginning of the injection to June 30, 1934, was about 22,500 barrels. Natural gas for repressuring is taken from high pressure gas wells in the gas field Brzezowka, 3 miles west from Potok. **Principal Lease Holders:** Galician Carpathian Oil Company; Dabrowa Oil Company; Witold Lozinski Oil Company; Jaslo-Potok Oil Company; Torozowka; Petronafta.

Ropianka (Oil)

Location: 20 miles south of city of Krosno; mining district of Jaslo; administrative district: Krosno. **Discovery Data:** Oil seepages. First production in 1868 from hand-dug oil wells. In 1874 there were 4 oil companies and 35 drilled hand-dug oil wells producing about 11,000 barrels yearly. Depth of wells 200 to 700 feet. Initial production of some first flowing wells was about 60 barrels daily. **Geology:** Anticline of Cretaceous Ropianka beds in front of marginal part of Magura zone. **Producing Formations:** Oil production from irregular Cretaceous sands and sandstones at 1000 to 1700 feet. Oil nonparaffin base. Specific gravity 0.720 to 0.858; average 0.833; gasoline content 30 to 32 percent. **Extent of Development:** About 30 wells drilled from 1885 to June 30, 1934. Many hand-dug wells were later deepened by drilling. **Deepest Hole:** Rosana Oil Company's No. 25, producing from 1700 feet one barrel daily. Another authority says deepest well is Starzynski's Feciow 5, completed in 1893 at 700 meters for 10,500 kilograms daily of Cretaceous oil. **Productive Area:** Approximately 30 acres. Field is not defined from east and west. **Production History:** Total amount of oil produced by field from 1868 to the end 1933: about 195,000 barrels. From January 1, 1934, to June 30, 1934: 874 barrels. Daily average June 30, 1934: 4 barrels from 15 oil wells. **Present Activity:** One well drilling in July, 1934, using pole tools. **Principal Lease Holders:** "Rosana" Oil Company.

Rudawka Rymanowska (Oil)

Location: 17 miles southeast of city of Krosno; 6 miles east of the field Iwonicz-Wolka-Klimkowka; mining district of Jaslo; administrative district: Sanok. **Discovery Data:** Discovery well was Kwilecki Co.'s Jadwiga 1, completed in 1899 at 800 feet in Oligocene Krosno beds, produced initially by flowing small quantities of oil. **Geology:** Unsymmetrical fold, refolded and overturned. Said to be a lengthening of the anticline of Iwonicz. **Producing Formations:** Several producing horizons in Upper Oligocene Krosno beds at 1200 to 3150 feet. In Eocene sandstones one horizon of small importance. Oil produced is of paraffin base. Average specific gravity, 0.843. Gasoline content 19%. **Extent of Development:** About 12 tests drilled since 1899 to June 30, 1934; 4 were oil producers, 8 were abandoned. **Deepest Hole:** Opiag 1, completed in 1918 by Oesterreichische

In the Near East "SHIELD-ARC" WELDING PREDOMINATES

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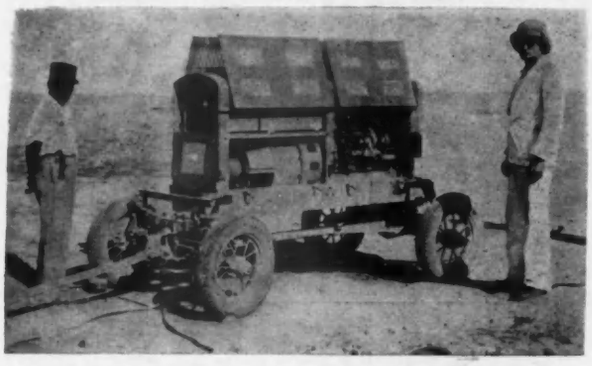

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"SHIELD-ARC" WELDERS

EUROPE—Poland—*Continued*

Petroleum Industrie Actien Gesellschaft (O. P. I. A. G.) at 3148 feet in Oligocene Lower Krosno beds. At 2585 feet produced initially about 75 barrels daily, at 2700 feet about 37 barrels, and at 3080 to 3148 feet about 23 barrels daily. **Productive Area:** Approximately 10 acres in July, 1934. **Production History:** Total production of oil since 1899 to end 1933 about 10,000 barrels. From January 1, 1934, to June 30, 1934, about 1776 barrels. Average daily production 1½ barrels from one well as of June 30, 1934. **Present Activity:** None. **Principal Lease Holders:** Leopold Hirschfeld.

Rzepiennik Strzyzewski (Oil)

Location: 16 miles northwest of city of Gorlice; mining district of Jaslo; administrative districe: Gorlice. **Discovery Data:** Oil seepages. In 1893 one wildcat drilled by Ottokar Klominek et Co. was abandoned at 928 feet in Cretaceous Czarnorzeki beds (?) Encountered oil and gas showings. In November, 1930, well Zoska 1, completed by Rzepienniki Oil Co. at 1410 feet in Cretaceous Czarnorzeki sandstones had an initial production of about 5 barrels daily. **Geology:** Two narrow parallel folds inclined north. **Producing Formations:** At present only one oil producing horizon at 1400 feet in Cretaceous Czarnorzeki sandstones. Lower Cretaceous beds not explored. Specific gravity of oil is 0.827. Gasoline content about 31%. **Extent of Development:** Two tests drilled from discovery of the field to June 30, 1934, one dry and abandoned, one oil producer. **Deepest Hole:** Zoska No. 1, 1410 feet, at present producing. See discovery data. **Productive Area:** At present only one well producing. **Production History:** Total yield of the well Zoska 1 since 1931 to the end 1933: 3124 barrels. From January 1, 1934, to June 30, 1934: 236 barrels. Average daily production about 1 barrel from 1 well as of June 30, 1934. **Present Activity:** No rigs running June 30, 1934. **Principal Lease Holders:** "Rzepienniki" Oil Company.

Sekowa-Ropica Ruska (Oil)

Location: 3 miles southeast of city of Gorlice and 3 miles southwest of oil field Kobylanka-Kryg-Lipinki; mining district of Jaslo; political (administrative) district: Gorlice. **Discovery Data:** Oil seepages and shallow hand-dug wells. In 1874 there were in Sekowa 6 oil companies and 60 hand-dug and hand-drilled (by free-fall) wells producing about 5600 barrels yearly. Average depth of wells 280 feet. In Ropica Ruska there were in 1874 four oil companies and 74 shallow oil wells, producing about 2700 barrels yearly. Depth of these wells 70 to 280 feet. In 1881 there were 101 hand-dug wells. In 1896 production of Sekowa was about 29,000 barrels and of Ropica Ruska about 68,000 barrels. **Geology:** Folds in marginal part of Magura zone. Bolidanowicz says "One complex series supposed to be overthrust on facies of Median zone." **Producing Formations:** Several producing horizons in Upper Cretaceous Inoceramus beds at 250 to 1300 feet. Oil nonparaffin. Specific gravity: in Sekowa, 0.782 to 0.848; in Ropica Ruska, 0.825 to 0.849. Gasoline content: 22%. **Extent of Development:** About 160 tests drilled since discovery of the field to June 30, 1934. **Deepest Hole:** Ropica 1, 1640 feet, at present producing small quantities of oil from Cretaceous Inoceramus beds. **Productive Area:** Approximately 100 acres in July, 1934. **Production History:** Total amount of oil produced by field from 1870 to the end 1933: about 700,000 barrels. (Partly estimated). From January 1, 1934, to June 30, 1934: 2100 barrels. Present average daily production 10 barrels from 40 wells. (June 30, 1934). In 1907 all wells in Ropica Ruska and Sekowa were shut down. **Present Activity:** No drilling in June, 1934. **Principal Lease Holders:** "Gorlicka Nafta" Oil Company; "Wladyslaw Dlugosz"; "Przyszlosc" Oil Company, and several minor companies.

Siary-Szymbark (Oil)

Location: 3 miles south of city of Gorlice. 5 miles southwest of oil field Kobylanka-Kryg-Lipinki. **Discovery Data:** Oil seepages and hand-dug wells. In 1875 there were in Siary 16 oil companies and 155 shallow hand-dug and hand-drilled (free-fall) wells, producing about 15,000 barrels of oil (yearly) from 85 to 430 feet. In 1874 production about 7500 barrels. **Geology:** Fold overturned north on marginal part of Magura zone. One complex of a series supposed to be overthrust on facies of the Median zone. **Producing Formations:** Oil is produced from Eocene sandstones and Cretaceous Inoceramus (and Ropianka?) beds at 500 to 1000 feet. Oil nonparaffin. Avrage specific gravity, 0.847 to 0.853. Gasoline content about 27%. **Extent of Development:** Estimated about 100 tests drilled since discovery of the field to June 30, 1934. **Deepest Hole:** Wildcat "Lasek 1, in Szymbark, dry and abandoned in 1920 at 4167 feet in Oligocene Krosno beds, below the Magura zone. **Productive Area:** About 50 acres in July, 1934. **Production History:** Total amount of oil produced by field from 1870 to end 1933: about 200,000 barrels (partly estimated). From January 1, 1934, to June 30, 1934: 1120 barrels. Average daily production 7 barrels from 23 wells as of June 30, 1934. Two wells producing only gas. **Present Activity:** One percussion (pole tools) rig running in July, 1934. **Principal Lease Holders:** Franciszek Rzicha; "Bystrzyca" Oil Company; "Gorlicka Nafta" Oil Company; "Thebe" Oil Company; Jozef Raczkowski; Stanislaw Haluch.

Stara-Wies-Brzozow-Humniska-Grabownica Starzenska (Oil)

Location: 1½ miles east of city of Brzozow; mining district of Jaslo; administrative district: Brzozow; see also "Grabownica" field. **Discovery Data:** Surface indications and shallow hand-dug wells. First well drilled in Stara Wies in 1896 by B. Kruszewski produced small quantities of oil. Third well completed August 24, 1897, flowed from 600 feet about 100 barrels daily of very light oil, specific gravity, 0.750. **Geology:** Narrow diapiric fold, 15 miles long, broken by many transverse faults. **Producing Formations:** In Stara Wies and Brzozow production of oil from Eocene Ciezkowice sandstones at 650 to 1650 feet. In Humniska and Grabownica Starzenska, oil from three horizons in Cretaceous sands at 1000 to 3300 feet. In Stara Wies and Brzozow oil nonparaffin, very light of specific gravity 0.725 to 0.750. Gasoline content 66%. In Humniska and Grabownica Starzenska specific gravity of oil is 0.785 to 0.829. Paraffin content 2 to 4%. Gasoline content 29-35%. **Extent of Development:** About 100 wells drilled from 1896 to the end 1933, 5 of these were dry. **Deepest Hole:** Galicia Oil Co.'s Nr. 19 in Grabownica Starzenska, at present is deepening at 3490 feet in Cretaceous. Grabownica Oil Co.'s well "August" in Humniska, at present is drilling 3486 feet in Cretaceous producing small quantities of oil, about 6 barrels daily. (June, 1934). **Productive Area:** Approximately 300 acres. **Production History:** Total amount of oil produced from 1896 to end 1933: 1,625,000 barrels. From January 1, 1934, to June 30, 1934: 63,980 barrels. Average daily production 313 barrels from 54 wells as of June 30, 1934. **Present Activity:** 5 wells drilling at present. In Grabownica Starzenska two wells are producing by intermittent gas lift. Gas taken from high pressure gas wells in Strachocina gas field by a 4-inch pipeline 3½ miles long. Six miles southeast of Grabownica Starzenska oil field two wildcats drilled in Trepcza, near city of Sanok. One drilled by Ziemnafta Oil Company temporarily shut down at 1988 feet. Second drilled by Galicja Oil Company, present depth 2975 feet in Cretaceous beds, remarkable oil showings in June, 1934 bailed 55 barrels of oil. **Principal Lease Holders:** "Grabownica" Oil Company; "Galicja" Oil Company; Humniska-Brzozow" Oil Company; "Starowsianka" Oil Company; Brzozowsko-Iwonicka Spolka Naftowa.

EUROPE—Poland—*Continued*

Tokarnia-Wola Jaworowa (Oil)

Location: 10 miles southwest of city of Sanok; mining district of Jaslo; administrative district: Sanok. **Discovery Data:** Old wells drilled and hand-dug. First producer drilled in Wola Jaworowa in 1894, by Roman Zurowski; depth, 178 meters; initial production: 3 tons daily. In Tokarnia first wells drilled in 1896 by Tadeusz Domain to a depth from 784 to 984 feet were dry. In Wola Jaworowa in 1894 production was about 2330 barrels from 4 wells. **Geology:** Unsymmetrical fold of Krosno beds (Oligocene) overturned north. Oligocene Krosno beds covered by menilites slates of Lower Oligocene. **Producing Formations:** Two producing horizons in Oligocene Krosno beds at 350 to 785 feet. Oil is nonparaffin base of specific gravity 0.8473. Gasoline content about 12%. **Extent of Development:** About 30 tests drilled since 1894 to June 30, 1934, 5 dry. **Deepest Hole:** Wildcat "Dziunia 1" in Wola Sekowa, drilled one half a mile southwest from the producing area, abandoned in 1931 in Eocene sandstones at 2388 feet, encountered edge water. **Productive Area:** About 25 acres as of June 30, 1934. **Production History:** Total production since 1894 to end 1933 about 59,000 barrels. From January 1, 1934 to June 30, 1934, 630 barrels. Present average daily production about 3 barrels from 7 wells. **Present Activity:** One percussion rig running at present (June, 1934). **Principal Lease Holders:** Malopolska Spolka Akcyjna dla Przemyslu Naftowego.

Tyrawa Solna (Oil)

Location: 6 miles northeast from city of Sanok; mining district of Jaslo; administrative district: Sanok. **Discovery Data:** Oil seepages and oil drilled tests. In 1897 production 480 barrels. From 1897 to 1931 no well drilled. August 13, 1931, well Artur No. 1, completed by Herman Dienstag at 425 feet in Oligocene Kliwa sandstones producing initially about 3 barrels daily. **Geology:** Narrow fold, inclined north in Oligocene Krosno beds and Kliwa sandstones. **Producing Formations:** At present only one producing horizon in Oligocene Kliwa sandstones at 330 to 350 feet. Specific gravity of oil 0.850. **Extent of Development:** 10 wells drilled from discovery of the field to June 30, 1934, 9 oil producers, 1 dry. **Deepest Hole:** Well Artur No. 8, drilling in September, 1934 (by Herman Dienstag), at 656 feet in Menilite slates. **Productive Area:** About 25 acres. **Production History:** Total amount of oil produced by field since discovery to end 1933 about 3850 barrels. From January 1, 1934 to June 30, 1934: 1084 barrels. Daily production about 5 barrels from 8 wells as of June 30, 1934. **Present Activity:** One drilling June 30, 1934, by percussion method (pole tools). **Principal Lease Holders:** Hermann Dienstag.

Weglowka (Oil)

Location: 6 miles north of city of Krosno; mining district of Jaslo; administrative district: Krosno. **Discovery Data:** Surface indications. First well was drilled by William Henry Mac Garvey in 1888 to the depth about 300 feet. Karpaty Co. got production in 1895. In 1901 production 130,000 barrels. **Geology:** Two parallel folds pinched out and inclined north emerging in presumable tectonic window. **Producing Formations:** Two oil producing horizons in Cretaceous (Cznorzeki) sandstones at 250 to 1500 feet. At some points there are three oil producing sands. Oil nonparaffin of specific gravity 0.862 to 0.869. Gasoline 23%. **Extent of Development:** 220 wells drilled since discovery of the field to June 30, 1934: 207 oil producers, 13 dry. **Deepest Hole:** Deepest well 1680 feet drilled in 1928 by the Galician Carpathian Oil Company. Initial production 35 barrels daily from Cretaceous sands. **Productive Area:** Area proved for oil production about 156 acres. **Production History:** Total oil production from 1895 to the end 1933 about 1,900,000 barrels. From January 1, 1934, to June 30, 1934: 13,320 barrels. Average daily production 75 barrels from 78 producing oil wells as of June 30, 1934. Specific gravity of oil 0.866. **Present Activity:** None in September, 1934. Drilling is by percussion method. **Principal Lease Holders:** Galician-Carpathian Oil Company; Henry Macher; Dr. Witold Wittig; "Pory" Oil Company.

Witrylow (Oil)

Location: 7 miles northeast from city of Sanok; mining district of Jaslo; administrative district: Brzozow. **Discovery Data:** Oil seepages. First production of oil in 1880, from 22 shallow, hand-dug wells. Production in 1880—about 150 barrels. First discovery well drilled in 1891 by William Henry Mac Garvey, produced initially about 30 barrels daily at 650 (?) feet. **Geology:** Narrow fold inclined south. **Producing Formations:** At present two producing horizons. One in Eocene sandstones at 350 to 650 feet of small importance. Second in Cretaceous sandstones at 850 to 1200 feet. Lower Cretaceous beds up to the present not explored. Specific gravity of oil 0.812. Gasoline content about 30%. **Extent of Development:** 15 tests drilled from discovery of the field to June 30, 1934. **Deepest Hole:** Meteor Oil Co.'s Barbara 1, completed March 2, 1930, at 1204 feet in Cretaceous sands, producing initially about 15 barrels daily. **Productive Area:** About 40 acres. Field extends over localities: Witrylow, Temeszow, Obarzym to Izdebki which is northwest. **Production History:** Total amount of oil produced by field to end 1933 about 17,000 barrels. From January 1, 1934, to June 30, 1934: 890 barrels. Average daily production about 9 barrels from 5 wells as of June 30, 1934. **Present Activity:** One rig running June 30, 1934. In Izdebki northwest from Witrylow, one wildcat, Maria 1, drilled by Pionier Oil Co., dry, abandoned November 24, 1933 at 2965 feet in Eocene (?) sandstones. Encountered several oil and gas showings. **Principal Lease Holders:** "Meteor" Oil Company.

Zaleze-Swierchowa-Lezyny (Oil)

Location: 7 miles south of the city of Jaslo; mining district of Jaslo; administrative district: Jaslo. **Discovery Data:** Oil seepages. First wells drilled in 1870 by William Stocker. From 1870 to 1892 about 38 tests were drilled, of which 11 were oil producers and 27 dry. From 1892 to 1905, William Henry Mac Garvey drilled 25 tests, of which 12 were oil producers and 13 dry. In 1905 all wells in Lezyny were abandoned for a very small production of oil. In 1905, a wildcat drilled in Swierchowa to a depth 2673 feet, encountered oil and gas showings at 738 and 1555. It was abandoned at 2673 feet. In 1928 a wildcat, Zygmunt 1, drilled in Swierchowa by Malopolska Oil Company, dry, abandoned at 2014 feet in Eocene (?) shales. Encountered only oil and gas showings. In Zaleze, well Stanislaw 1, completed December 31, 1929 at 1896 feet with initial production about 4 barrels daily. Grete 1, a wildcat drilling by Jozef Feuer in Zaleze, temporarily stopped for a severe fishing job at 2202 feet. It has encountered several important oil and gas showings. **Geology:** Fold inclined north refolded and broken by one fault in Lezyny. Axis of fold is dipping to west. This fold is the western extension of the fold Bobrka-Wietrzno-Rowne-Rogi. **Producing Formations:** In Lezyny oil was produced from Eocene and Upper Cretaceous sandstones at 1300 to 2230 feet. In Zaleze from Eocene Ciezkowice sandstones at 1900 feet. Oil nonparaffin of specific gravity 0.850. **Extent of Development:** About 67 tests drilled since 1870 to June 30, 1934: 24 were oil producers and 43 failures. **Deepest Hole:** One test drilled in Lezyny by William Henry Mac Garvey on northern limb of fold; dry, abandoned at about 3300 feet in Oligocene menilite slates. **Productive Area:** At present only one well producing in Zaleze. **Production History:** Total production of oil from 1870 to end 1933 estimated about 67,000 barrels. From January 1, 1934, to June 30, 1934, about 240 barrels. Present average daily production only one barrel

EUROPE—Poland—*Continued*

from one well. **Present Activity:** None, June 30, 1934. In Debowiec two miles northwest of Zaleze wildcat "Marise 1" is being drilled by Norig Oil Company. Present depth: 2873 feet in Eocene beds. Encountered gas showings. Fishing June 30, 1934. **Principal Lease Holders:** "Zaleze" Oil Company; "Malopolska" Oil Company; Jozef Feuer; Norig Oil Company.

Zmiennica-Turzepole (Oil)

Location: 2 miles southwest of city of Brzozow; mining district of Jaslo; administrative district: Brzozow. **Discovery Data:** Oil seepages. First production of oil obtained from hand-dug shallow wells about 1880. Drilling started in 1896. Production in 1896 was 683 barrels. **Geology:** Two parallel folds inclined north, broken by many transverse faults into separate blocks. **Producing Formations:** Oil is produced from Eocene Ciezkowice sandstones at 250 to 2400 feet. Paraffin and nonparaffin oil of specific gravity 0.853 to 0.861. Gasoline content 15%. **Extent of Development:** About 60 wells drilled since discovery of the field to June 30, 1934. Karpackie says "47 tests, 2 failures." **Deepest Hole:** "Polmin" Oil Company's well "General Litwinowicz" dry, abandoned December, 1932, at 3006 feet. Drilling stopped in Upper Cretaceous. **Productive Area:** Approximately 67 acres. **Production History:** Total oil production from 1896 to end of 1933, about 600,000 barrels. From January 1, 1934, to June 30, 1934: 10,054 barrels. Average daily production of field: 55 barrels from 38 wells as of June 30, 1934. **Present Activity:** No drilling in June 1934. **Principal Lease Holders:** "Polmin" Oil Company; Waclaw Piekos; "Oterna" Oil Company; "Szczesc Boze" Oil Company.

Stanislawow District

Bitkow (Oil and Gas)

Location: 22 miles southwest of city of Stanislawow; 15 kilometers southwest of Nadworna; mining district of Stanislawow; administrative district of Nadworna. **Discovery Data:** First production about 1870 from shallow hand-dug wells. First well drilled in 1897 was dry. Second well completed in 1899 by Dubrowa Company obtained 100 metric tons per month from 524 meters. Production in 1899 about 8000 barrels. **Geology:** Structure of two tectonic units. Great refolded overthrust and unsymmetrical fold as deep element. Longitudinal fault divides field into two parts: old field on north, new field on south. **Producing Formations:** Overthrust: several producing horizons of small importance in Eocene and Cretaceous beds. Deep element: main producing horizon from Oligocene sandstones (menilite beds with Kliwa sandstones). Depth of wells: oil field 1650 to 3300 feet, new field 2900 to 4900 feet. Specific gravity of oil: old field: 0.728 to 0.754. Well 37 of Dabrowa Oil Co. 1286 feet. Specific gravity of oil 0.728 at 15°C. Gasoline content 94%. Well Bitumen 1, 1938 feet, specific gravity of oil 0.754, gasoline content 70%. Well 5 of Dabrowa Oil Company, specific gravity of oil 0.824, gasoline content 20%. New field: Specific gravity of oil 0.810 to 0.820. Gasoline content 20%. Paraffin content about 3.5%. One part of the field produces only gas. This is a separate tectonic unit. **Extent of Development:** About 160 tests drilled from discovery of the field to June 30, 1934; 8 gas wells, 133 oil wells; failures estimated at 19 or more. **Deepest Hole:** Guenot 4, completed October 6, 1928, by Compagnie Franco-Polonaise des Petroles, at 5470 feet, flowing initially about 150 barrels of oil daily. **Productive Area:** About 250 acres, occording to one source; 300 hectares, according to another. **Production History:** Total amount of oil produced by field from 1898 to end of 1933, about 4,500,000 barrels. From January 1, 1934, to June 30, 1934: 88,890 barrels. Present average daily production 550 barrels from 90 wells, gas production about 4 million cubic feet daily. (June 30, 1934). **Present Activity:** 11 cable tool rigs running in September, 1934. **Principal Lease Holders:** Galician Carpathian Oil Company; Standard Noble Oil Company; Compagnie Franco-Polonaise des Petroles; Naphtha Oil Company; Fanto Oil Company; and Segil Oil Company.

Jablonka (Oil)

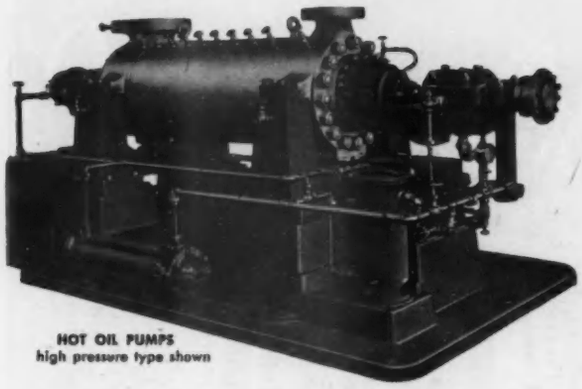
Location: 12 kilometers northwest Bitkow, 10 kilometers south Majdan; mining district of Stanislawow. **Discovery** Data: Discovery well was Opiag Co.'s Jablonka 1, completed in March, 1900, at 157 meters, 10 barrels daily. Gravity of oil 0.940, asphalt base. **Geology:** An unsymmetrical anticline, inclined northeast. **Producing Formations:** Two oil-bearing horizons in fine-grained sandstones, separated by black shales of Oligocene age (menilite slates). Depth of horizons 150-160 meters and 300-400 meters. **Extent of Development:** 4 producers and 2 failures up to June 30, 1934. **Deepest Hole:** Polska Spolka dla Przemyslu Naftowego's Pespen 1, abandoned in 1927 at 872 meters. Dry. **Productive Area:** Approximately 2 hectares. **Production History:** From 1929 to end of 1933: 2010 metric tons. In first 6 months of 1934: 127 tons. Average daily production (as of June 30, 1934) 1.1 tons from 3 producing wells. **Present Activity:** No drilling in field as of June 30, 1934. **Principal Lease Holders:** M. Haller et Co.

Kosmacz (Oil)

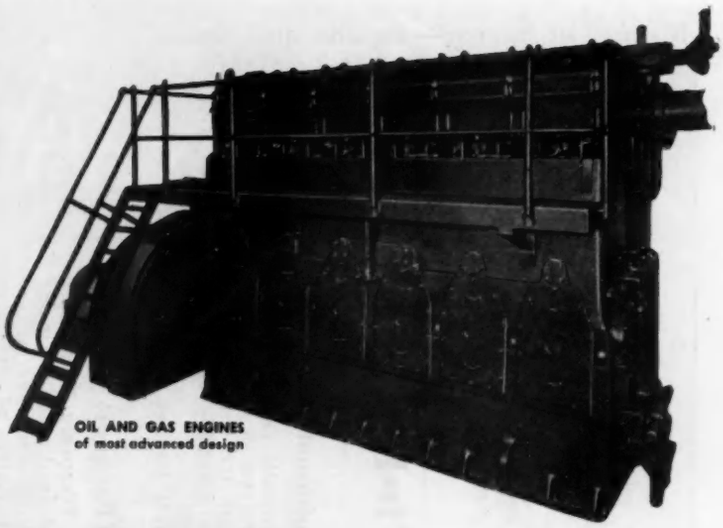
Location: 14 miles southwest of Kolomyja and 7 miles southeast of oil field Sloboda Rungurska; mining district of Stanislawow; administrative district of Peczenizyn. **Discovery Data:** Oil seepages. First tests were drilled in 1899 by Stanislaw Szczepanowski. In 1900 production was 1200 barrels from one well. In 1904 production was 9000 barrels from 4 wells. **Geology:** Unsymmetrical fold with axis plunging northwest. **Producing Formations:** Three producing horizons in Cretaceous beds (Jamna sandstone and Inoceramus beds). First horizon at 230 to 260 feet, second at 425 to 525 feet, both of small importance. Third, main horizon, is at 650 to 2130 feet. Oil is non-paraffin of specific gravity 0.887; gasoline content 7%. **Extent of Development:** 15 tests drilled from 1899 to June 30, 1934; 10 oil producers, 2 dry, 3 abandoned for fishing troubles. **Deepest Hole:** Premier Oil Co.'s No. 4, dry, abandoned 1920 at 2395 feet in Cretaceous beds. **Productive Area:** About 25 acres. **Production History:** Total amount of oil produced by field to end 1933—190,000 barrels. From January 1, 1934, to June 30, 1934—1885 barrels. Present average daily production 11 barrels from 10 wells. **Present Activity:** None as of June 30, 1934. **Principal Lease Holders:** "Kosmacka Ropa" Oil Company, and "Premier" Oil Company.

Majdan-Rosulna (Oil)

Location: 5 miles southeast of Rypne-Duba oil field and 11 miles northwest of oil field Bitkow; mining district of Stanislawow; political (administrative districts) of Kalusz and Stanislawow. **Discovery Data:** Oil seepages. In 1880 four hand-dug wells. First well drilled about 1885. In 1889 production 3320 barrels. During 1906 to 1924 all wells were shut down. In 1924 production and drilling started again. **Geology:** Unsymmetrical fold inclined north. **Producing Formations:** Two producing horizons in Eocene sandstones (sandstone beds in green shales). First at 590 to 850 feet. Second at 1080 to 1650 feet. Specific gravity of oil: first horizon: 0.832 to 0.836; gasoline content about 40%; second horizon: oil paraffin base of specific gravity 0.858. **Extent of Development:** 100 tests drilled since discovery of the field to June 30, 1934. **Deepest Hole:** Wildcat



HOT OIL PUMPS
high pressure type shown



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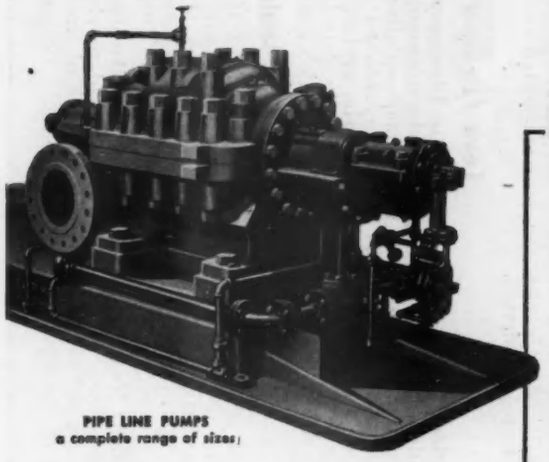

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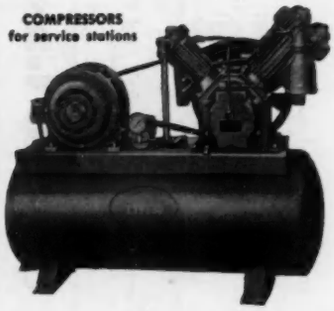
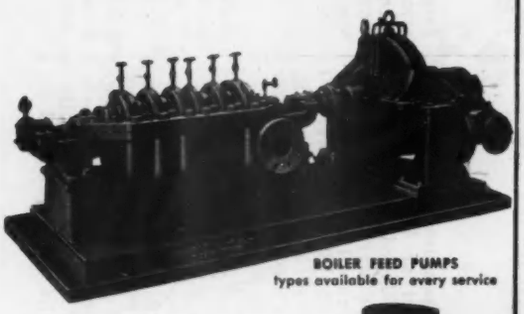


COMPRESSORS
for service stations



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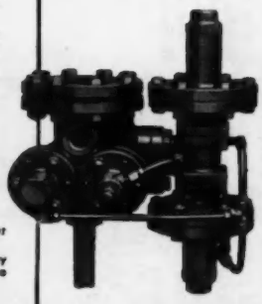

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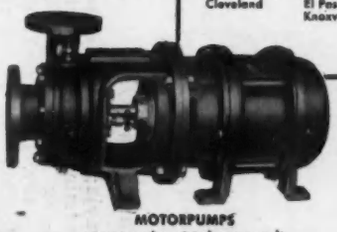

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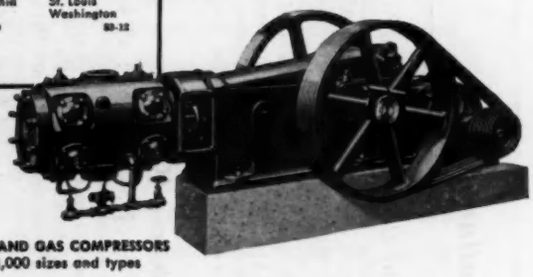

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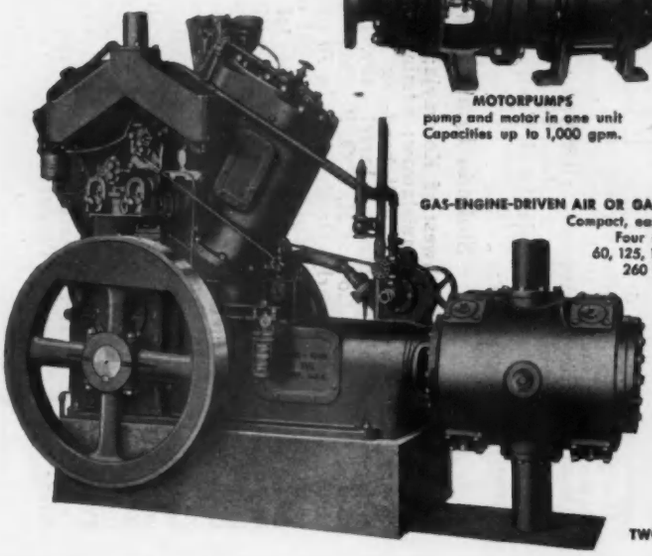

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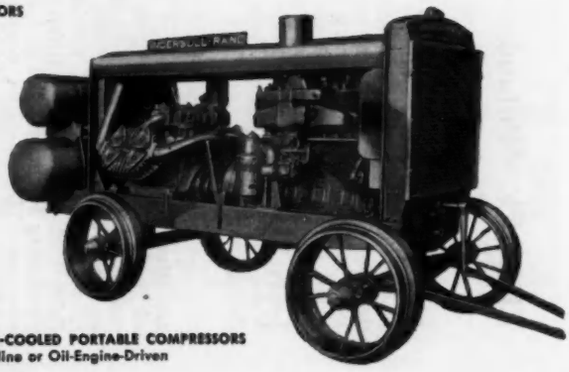

TWO-STAGE AIR-COOLED PORTABLE COMPRESSORS
Gasoline or Oil-Engine-Driven

EUROPE—Poland—*Continued*

Kitwan 1, completed March, 1927, by Compagnie Franco-Polonaise des Petroles in Kosmacz, 1 mile southeast of the field. Produced initially 50 barrels daily from 1590 feet in Lower Eocene beds. **Productive Area:** About 100 acres. **Production History:** Total amount of oil produced by field from 1889 to end of 1933 is about 271,000 barrels. From January 1, 1934, to June 30, 1934, about 12,000 barrels. Present average daily production 61 barrels from 55 wells. (June 30, 1934). **Present Activity:** Two cable tool rigs running June 30, 1934. **Principal Lease Holders:** Compagnie Franco-Polonaise des Petroles; Majdanska Spolka Naftowa; Podkarpackie Towarzystwo Gornicze; Teodor Kozak et Co., and W. Zuckerberg.

Pasieczna (Oil)

Location: 22 miles southwest of city of Stanislawow; 10 kilometers southwest of Nadworna; mining district of Stanislawow; administrative district of Nadworna. **Discovery Data:** First production in 1880 from shallow, hand-drilled wells. In 1886 production was 830 barrels from 22 drilled wells, depth of which ranged from 100 to 150 meters. **Geology:** Pasieczna is the southeast extension of the field, both elements of Bitkow. Structure of two tectonic units as in Bitkow. **Producing Formations:** The same as in Bitkow oil field. Old field: gravity of oil, average 0.728; gasoline content 90 to 40%, non-paraffin. New field: 0.810 to 0.838; gasoline content 26 to 32%, paraffin 2 to 5%. (Wells Chrobry 1 and 2 producing from deep fold). **Extent of Development:** About 180 tests drilled from 1886 to June 30, 1934; percentage of failures unknown. **Deepest Hole:** Standard Nobel Oil Co.'s Laszcz 1, completed in August, 1927, at 5245 feet. Produced initially about 9 million cubic feet of gas daily. Initial shut-in pressure was 2400 pounds per square inch. At present the well is shut down. **Productive Area:** About 180 acres. **Production History:** Total amount of oil produced by field from 1886 to end of 1933—702,000 barrels; from January 1, 1934, to June 30, 1934—14,000 barrels. Average daily production 75 barrels from 30 wells. (June 30, 1934). **Present Activity:** 3 cable tool rigs running in September, 1934. **Principal Lease Holders:** "Premier" Oil Company; Standard Noble Oil Company; Bonariva Oil Company.

Sloboda Rungurska (Oil)

Location: 11 miles southwest of Kolomyja; 25 kilometers southeast of Nadworna; mining district of Stanislawow; administrative district of Kolomyja. **Discovery Data:** In 1771 first well hand-dug for salt, encountered at 70 feet oil and produced initially about 1 barrel daily. In 1875 there were two oil companies, (Lidwicki et Co and M. & O. Rosenkranz) and seven oil wells producing about 1100 barrels yearly. Depth of wells, 70 to 200 feet. In 1881 there were 50 wells, 40 drilling and 10 in production. In 1883 there were 13 oil companies and 82 wells. The largest oil company was that of Stanislaw Szczepanowski, who had 41 wells. In 1886 there were about 100 wells producing and 200 wells drilling. Maximum of yearly production of the field was in 1885 about 187,000 barrels. **Geology:** Unsymmetrical fold overturned north, axis of the fold plunges northwest. Steep flanks. **Producing Formations:** Three producing horizons in Eocene sandstones and Upper Cretaceous beds at 400 to 1000 feet. Oil is paraffin base and of specific gravity of 0.828 to 0.853, paraffin content 3.5%, gasoline 7%. **Extent of Development:** More than 300 wells drilled since discovery of the field to June 30, 1934. Other data not available. **Deepest Hole:** "Pionier" Oil Co.'s wildcat drilling in Potok Czarny, northwest of Sloboda Rungurska. Present depth 3129 feet in Cretaceous Jamna Sandstone. (June 30, 1934). **Productive Area:** About 250 acres.. Production History: Total amount of oil produced by field from 1880 to end of 1933 is about 2,580,000 barrels. From January 1, 1934, to June 30, 1934—7077 barrels. Average daily production 37 barrels from 51 wells as of June 30, 1934. **Present Activity:** 1 cable tool running June 30, 1934. **Principal Lease Holders:** "Sloboda Rungurska" Oil Company; "Aron Rosenkranz" and "Wschodnio Malopolka Spolka Wiertnicza."

For the foregoing data on 49 fields and districts of Poland, The OIL WEEKLY acknowledges the helpful co-operation of Instytut Przemyslu Naftowego, and of Karpacki Instytut Geologiczna. Personal acknowledgments are also made to Ing. Henry Gorka, Ing. Jan Josef Czastka, and Ing. August Nieniewski.

For reference, Karol Bohdanowicz's "Oil Fields of Poland", Vol. 16, No. 11, and Vol. 17, No. 9, Bulletin of A.A.P.G., has been consulted.

Oil and Gas Fields of Spain

General Information

The northern portion of Spain is generally regarded by geologists as offering best possibilities of commercial petroleum development. In that region possible oil-bearing Triassic beds lie beneath the Cretaceous and Tertiary formations. Provinces which are looked upon favorably include: Alva, Burgos, Guipuzcoa, Navarra, Santander, Viszcaya.

The Spanish monopoly went into effect January 1, 1927, giving the government control of the oil industry.

Gastiain (Prospect)

Location: In the province of Navarra. **Discovery Data:** Surface geology gave evidence of structure. **Geology:** A well-defined anticline, in the Cretaceous beds. **Producing Formation:** Limestones of Cretaceous age, at several different horizons (non-commercial gas production). **Extent of Development:** The Compania Petrolera Ibero-Americana (Interocean Oil Company interests) drilled a test to 5285 feet. It encountered gas at several horizons, but was abandoned before penetrating the shales and limestones of the Cretaceous, failing to reach the original objective, the porous formations of Triassic age. **Deepest Hole:** 5285 feet (see above).

Leva (Prospect)

Location: In the province of Burgos. **Discovery Data:** Surface geology attracted attention. Structure indicated in surface formations. Also oil is evidenced in surface outcrop. **Geology:** A well-defined anticline, in Cretaceous beds. **Extent of Development:** About 1920 a company erected a steaming process plant, to extract oil from outcrop of oil sand. The project did not, however, prove successful. In 1923 the Compania Espanola de Petroleo de Bilbao was drilling a test about five miles from the locality in which the oil sand outcropped.

Puerto-Llano (Oil-shale Mining)

Extent of Development: Sociedad Minera y Metalurgica de Penarroya was exploiting oil-shale deposits, although the plant was reported in 1923 to be still in experimental stage.

Villamartin (Prospect)

Location: Near Villamartin, about 60 kilometers northeast of Cadiz. **Extent of Development:** Several shallow wells had previously been drilled in the area, it was reported in 1923. One of them yielded small production of high gravity oil, but was not operated commercially.

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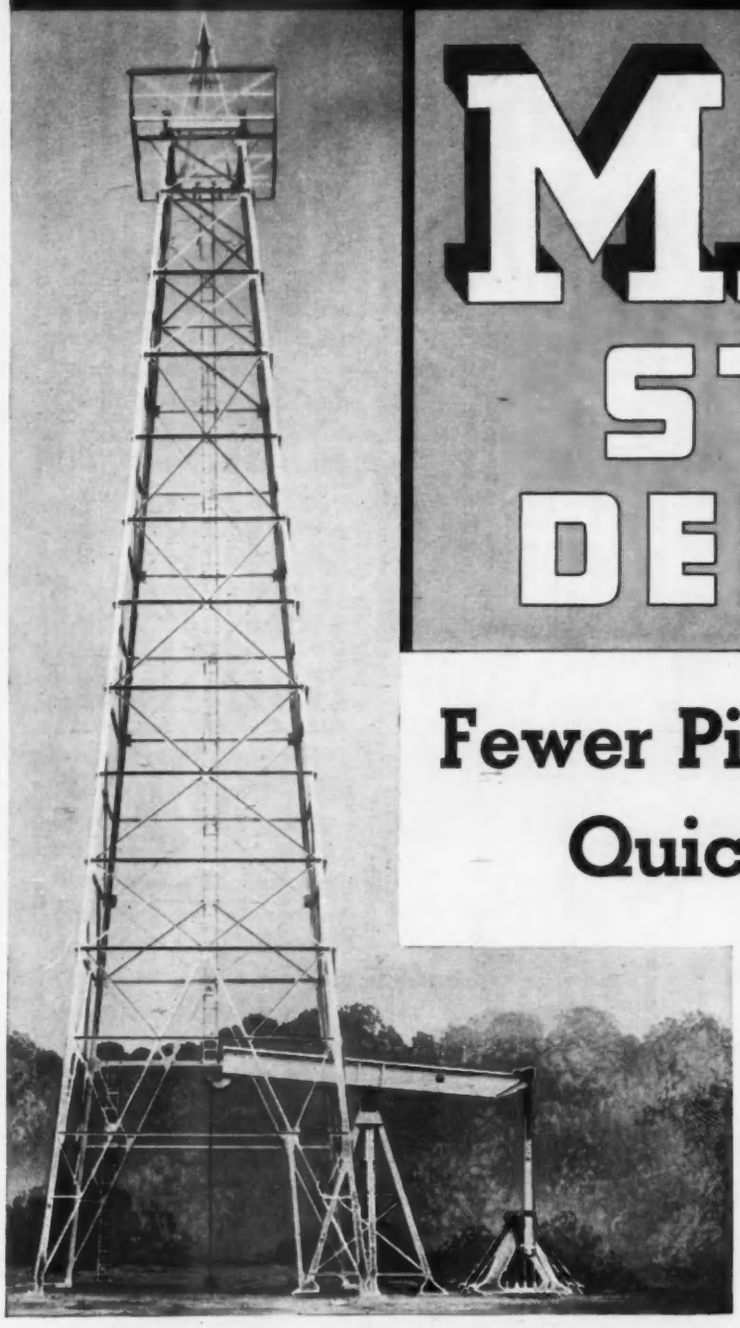

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Oil and Gas Fields of Europe (Roumania)

General Information

History.—Some petroleum development and use occurred as early as 1856. Production gradually increased to around 500,000 barrels annually in the 1890's, and at the turn of the century began large and rapid expansion, reaching 13,554,768 barrels in 1913.

In 1917, during the World War, the Allies voluntarily destroyed the Roumanian oil fields and refineries almost completely, when the Germans invaded the country, to prevent use of the Roumanian oil by the Central Powers. Oil output in 1917 was only 2,681,870 barrels. It did not again reach 10,000,000 barrels a year until 1923. Since that year, however, production has been steadily and greatly increasing, rising to a new peak of about 60,000,000 barrels in 1934.

Location.—The oil fields are on eastern and southern slopes of the Carpathian Mountains. The counties of Prahova and Dambovita produce a high proportion of the country's total, but Buzau Bacau, and Maramures Counties are also productive.

Geology: Production is principally from the Sub-Carpathian fields, producing from Upper Tertiary sands, particularly of Pliocene age. The Carpathian fields produce from formations of Lower Tertiary age (Eocene and Oligocene). The more prolific fields are associated with the salt deposits.

Arbanasi (Oil)

Location: Buzau district. **Discovery Data:** Oil seeps led to early drilling; other data not available. **Geology:** Anticline. **Producing Formations:** Hard and soft Meotic sands found at 200-1000 feet. Specific gravity of oil is 0.835. **Extent of Development:** Up to June 30, 1934: Approximately 110 completions, mostly productive. No pure gas wells. **Deepest Hole:** 2800 feet. Steaua Romana, stopped in Miocene. **Productive Area:** 400 acres. Not definitely defined. **Production History:** Total amount oil produced to end of 1933: 16,452,040 barrels. Total produced during first six months of 1934: 176,400 barrels; daily average production as of June 30, 1934: 970 barrels; wells on production June 30, 1934: 80. **Present Activity:** None in August, 1934. Percussion rigs are used. **Principal Lease Holder:** Steaua Romana.

Aricesti (Oil and Gas)

Location: Prahova district. **Discovery Data:** Gas seepages led to early drilling; other data not available. **Geology:** Salt anticline. **Producing Formations:** Dry gas from soft sand, Dacic-Pliocene, found at 1600 feet. Oil from soft and hard sands, Meotic-Pliocene, found at 5000-7000 feet; paraffin base; specific gravity: 0.850. **Extent of Development:** Up to June 30, 1934: First development for Dacic, 20 oil wells, 5 gas wells, and 15 failures. Second and present development for Meotic: 29 oil wells, 1 gas well and 11 failures. **Deepest Hole:** 22 Steaua Romana, gas and oil. 7220 feet. Meotic. **Productive Area:** Defined north, south and east. 1400 acres. Only Meotic commercially productive. **Production History:** 1,195,125 barrels cumulative through 1933. 1,436,475 barrels produced in first 6 months of 1934. June 30, 1934, 12 wells were on production. **Present Activity:** 7 rotary running in September, 1934. **Principal Lease Holders:** Steaua Romana, Romano-Americana, and Unirea.

Baicoi-Tintea (Oil)

Location: Prahova district. **Discovery Data:** Oil seepages caused first drilling. Baicoi began producing in 1863; Tintea, same year. **Geology:** Salt anticline and, in case of Baicoi, soft plug. **Producing Formations:** Dacic, Pliocene, asfaltic and mixed base, .800-.900 specific gravity. 0-5000 feet major producing formations—soft sand. Meotic, minor importance—paraffinous base 1000-5000 feet. Paraffinous oil has a specific gravity of 0.800 to 0.850. **Extent of Development:** Up to June 30, 1934: 560 oil wells and 97 failures. Many wells dug by hand. **Deepest Hole:** No. 2, Concordia—7000 feet, failure, stopped drilling in salt. **Productive Area:** As of September, 1934, estimated 1100 acres. Field is defined on all sides. **Production History:** 31,617,731 barrels cumulative total to end of 1933; 436,155 barrels total produced during first 6 months of 1934; 2450 barrels daily average production as of June 30, 1934, from 55 wells. **Present Activity:** 1 rotary rig running in September, 1934. **Principal Lease Holders:** Romano-Americana, Unirea, and Concordia.

Bazna (Gas)

Location: Also known as Transylvania; Transylvania district. **Discovery Data:** Observation of gas seeps caused first drilling. **Geology:** Dome. **Producing Formations:** Sarmatic sand of Miocene age. Methane gas, 500-1000 feet. **Extent of Development:** Up to June 30, 1934: 8 gas wells and 1 failure. **Deepest Hole:** No. 9, 1115 feet, Miocene. **Productive Area:** Data not available. **Production History:** Gas is pure methane (98%); 5 gas wells producing on January 1, 1934. **Present Activity:** Rotary rigs are used. **Principal Lease Holder:** Sonametan.

Boldesti-Harsa (Oil and Gas)

Location: In Judetal, County of Prahova, falls in the communes of Gageni, Scaeni, Boldesti and Harsa. Field is 6 miles north of Ploesti and 40 miles north of Bucarest. **Discovery Data:** Surface geology (dips of outcrops) indicated an anticline. Discovery well was Astra Romana's No. 7, completed in Meotic sand at end of 1929; depth, 1681 meters (5547 feet); initial production, 980 barrels per day; specific gravity, 0.838. Well later deepened to 6052 feet and re-completed as a commercial producer. Regatal Roman drilled the first hole in the field in 1907, but it was a failure. Dacic gas was found in 1924, but additional data on this minor discovery is not available. **Geology:** Simple anticline where, as yet, no faults of importance have been found. Axial direction is more or less east and west. **Producing Formations:** Dry gas from Dacic sand of Pliocene age at 1500 feet. Meotic formations yield the oil. These are a series of alternating sands, hard sands, sandy shales and a little sandstone, all of Pliocene, topped at depths varying from 5000 to 7500 feet, according to position on structure. Paraffin base oil with a specific gravity ranging from 0.83 to 0.86. The Meotic in this region is generally divided into three sand complexes: First, Intermediate, and second, the depths of which below the top of the Meotic are respectively (1) 50 to 100 meters—yielding oil with specific gravity of 0.831 to 0.835; (2) 160 to 180 meters—specific gravity, 0.857; and (3) 240-340 meters—specific gravity, 0.845 to 0.850. Note: Romano Americana places the depth range of the Meotic at from 4000 to 8000 feet. **Extent of Development:** Up to June 30, 1934: 68 oil wells and 13 failures. The failures include the 7 shallow exploration wells of the pre-commercial era of the field. Gas wells are included among the failures also, since production of pure gas from oil horizons is prohibited. Romano-Americana's figures on development show 6 oil wells, 3 gas wells and 3 failures from the Dacic sand, and 71 oil wells, 3 gas wells and 4 failures from the Meotic sands. **Deepest Hole:** Credit Minier's Harsa 3, completed in Meotic sand at 2760 meters (9108 feet), March 29, 1934; initial production 525 barrels net oil (700 barrels with water). This well is plugged back and is producing from the First and Intermediate complexes of the Meotic. It is located on the extreme east end of the plunge. **Productive Area:** Estimated at 2600 acres in September, 1934. Field is about 5

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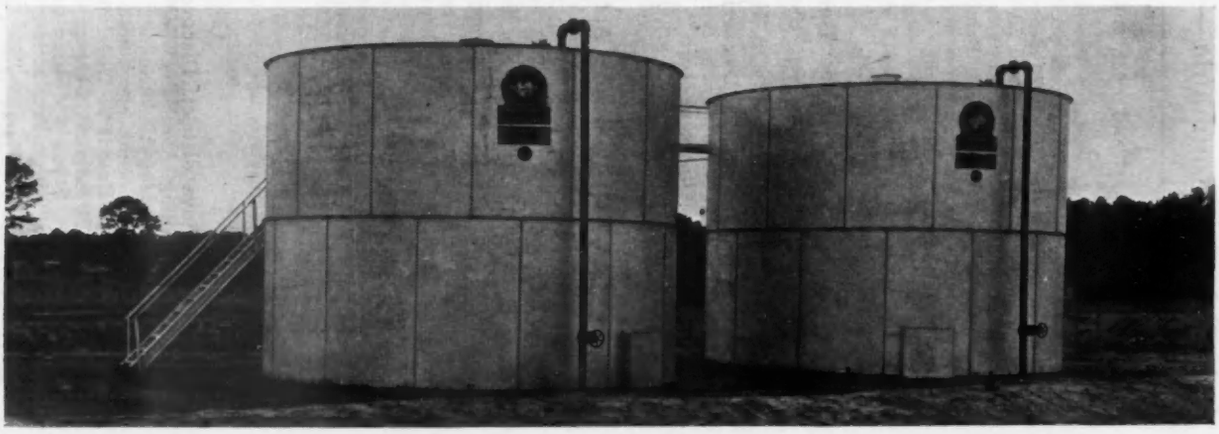

EUROPE—Roumania—*Continued*

kilometers long, east and west, and about 1 kilometer wide, north and south; it is defined on all sides but the west side. Average thickness of the Meotic in this area is about 340 meters. **Production History:** 21,788,160 barrels produced through 1933; 4,805,475 barrels produced during first 6 months of 1934; 45 wells were on production June 30, 1934, when the daily average production of the field was between 26,600 barrels and 30,000 barrels. Average specific gravity oil being produced is 0.840. **Present Activity:** 12 rotary rigs running in September, 1934. This is a high pressure field. **Principal Lease Holders:** Astra Romana and Romano-Americana leases, comprising a major portion of the field, are operated by the former under a unit arrangement; Steaua Romana's leases are in the southern and western parts of the field; holdings of Unirea and Credit Minier are primarily on the east plunge of the structure; several large pieces of unconcessioned state land also exist.

Bordeni (Oil)

Location: Prahova district: see "Runcu, Chiciura, Bordeni."

Bustenari (Oil)

Location: Prahova district. **Discovery Data:** Observation of oil seeps caused first drilling. **Geology:** Thrust fault. Some geologists have classified it as a "diapiric fold having an Oligocene core." **Producing Formations:** Meotic, paraffinous, 0-3000 feet, soft sands, specific gravity of .820 and lighter. Oligocene, paraffinous, 0-500 feet, soft sands, specific gravity of .800±. **Extent of Development:** Up to June 30, 1934: 763 wells, mostly productive. Many hand wells. **Deepest Hole:** No data available. **Productive Area:** Defined, 2100 acres. **Production History:** 48,636,700 barrels cumulative total through 1933; 186,000 barrels produced in first 6 months of 1934; 975 barrels daily average production as of June 30, 1934, when 246 wells were on production. **Present Activity:** None in September, 1934. **Principal Lease Holders:** Many companies, including Steaua Romana.

Campina (Oil)

Location: Prahova district. **Discovery Data:** Observation of oil seeps caused first drilling. **Geology:** Monocline, thrust, fault. **Producing Formations:** Oil comes from Meotic sand of Pliocene age which yields paraffin base oil of 0.820 specific gravity, and is found at from 500 to 1000 feet. **Extent of Development:** Up to June 30, 1934: 277 oil wells. **Deepest Hole:** Data not available. **Productive Area:** Estimated at 790 acres in September, 1934. **Production History:** 31,485,179 barrels cumulative total through 1933; 132,885 barrels produced in first 6 months of 1934; 725 barrels daily average output as of June 30, 1934, when 66 wells were on production. **Present Activity:** No wells drilling in September, 1934. **Principal Lease Holders:** Steaua Romana and Astra Romana.

Ceptura (Oil)

Location: Prahova district. **Discovery Data:** Observations of surface anticline caused first drilling. A relatively new field in 1928, when production passed million barrels. **Geology:** Anticline. **Producing Formations:** Meotic, soft and hard sands of Pliocene age found at 1500 to 5000 feet. Specific gravity .850, paraffin base oil. **Extent of Development:** Up to June 30, 1934: 178 oil wells, no gas wells, and 20 failures. **Deepest Hole:** No. 70, drilled by Romano-Americana; depth, 5720 feet. Stopped drilling in the Pontic. Failure. **Productive Area:** 2100 acres; defined all sides. **Production History:** Total oil production to end of 1933: 20,542,330 barrels; total produced in first 6 months of 1934, 1,624,350 barrels. Daily output as of June 30, 1934: 8350 barrels, which was coming from 61 wells. **Present Activity:** 1 rotary running in September, 1934. **Principal Lease Holders:** Astra Romana, Seaua Romana and Romano-Americana.

Chiciura (Oil)

Location: Prahova district; see "Runcu, Chiciura, Bordeni." **Discovery Data:** First production in 1912. **Production History:** Output in 1933 was 1,002,086 bbls., with 148 wells producing at end of year. **Present Activity:** At beginning of 1934, one well drilling; 16 being worked over.

Copaceni (Oil)

Location: Prahova district. **Discovery Data:** Observation of oil seep caused first drilling; other data not available. **Geology:** Thrust fault. Narrow field. **Producing Formations:** Meotic sand produces light oil from 1500 feet. **Extent of Development:** Up to June 30, 1934: 10 wells. Mostly productive. **Deepest Hole:** No. 14, drilled by Nafta Romana, completed 2260 feet in Meotic (Pliocene). **Productive Area:** Estimated in September, 1934, at 120 acres. **Production History:** Total produced to end 1933: 744,600 barrels. Total production during first 6 months of 1934: 53,500 barrels. Daily output as of June 30, 1934: 450 barrels coming from 5 wells. **Present Activity:** None in September, 1934. **Principal Lease Holders:** Nafta Romana.

Copsa Mica (Gas)

Location: Transylvania district. **Discovery Data:** Observation of gas seeps caused first drilling. Other data not available. **Geology:** Dome. **Producing Formations:** Sarmatic formation of Miocene age produces methane gas at from 600 to 2000 feet. **Extent of Development:** Up to June 30, 1934: 5 gas wells, all productive. One has been burning since July 11, 1933. **Deepest Hole:** No. 5, 2510 feet. Stopped in Miocene (Sarmatian). Now burning. **Productive Area:** Data not available. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Sonametan Co.

Filipesti de Padure (Oil)

Discovery Data: First production in 1910. **Present Activity:** One company only operator, drilling one well in early 1935. No production.

Gropi (Oil)

Location: Prahova district; see "Runcu," etc.

Gura Ocnitei (Oil)

Location: Prahova and Dambovitza districts, see Piscuri, under which additional data on Gura Ocnitei is presented. **Discovery Data:** First production in 1883. **Producing Formations:** Drader (Dacic) sand 2900 to 3250 feet. Meotis sand 4600 to 6000 feet. Dacic composed of fine to coarse sands, sandy marls and marble with beds of shale or lignite. Meotic (high pressure) is fine to coarse sands and sandy marls with few hard streaks; normal thickness, 130 feet. **Principal Lease Holders:** Romano-Americana; "Unirea"; Royal Dutch Company; (Astra-Romana).

Harsa (Oil and Gas)

Location: Judetal, County of Prahova; see "Boldesti-Harsa."

Lucacesti (Oil)

Location: District of Bacau, see "Moinesti-Lucacesti."

Moinesti (Gas)

Location: Transylvania district. **Discovery Data:** Sonametan Co.'s No. 1, completed as a gas well at 330 feet in the Sarmatic sand of Miocene. Date of com-

pletion not available. **Geology:** Dome. **Producing Formations:** Sarmatic sand of Miocene age yields methane gas at 330 feet. **Extent of Development:** Up to June 30, 1934, one productive gas well. **Deepest Hole:** No. 1, 330 feet. See discovery data. **Productive Area:** Not determined. **Production History:** Data not available. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Sonametan Company.

Moinesti-Lucacesti (Oil)

Location: Bacau district. **Discovery Data:** Oil seeps caused first drilling. Other data not available. **Geology:** Overthrust fault. **Producing Formations:** Pliocene and Oligocene. Light oil. Specific gravity .810. Depth, 200 to 1000 feet. **Extent of Development:** Data not available. **Deepest Hole:** 3500 feet, Steaua Romana. **Productive Area:** Estimated in September, 1934, at 170 acres. Not defined. **Production History:** 1,713,567 barrels cumulative total through 1933; 53,500 barrels produced during first 6 months of 1934; 280 barrels daily output from 14 wells on June 30, 1934. **Present Activity:** None in September, 1934. **Principal Lease Holders:** Steaua Romana.

Moreni (Oil)

Location: Prahova and Dambovitza districts; see "Piscuri," under which additional data on Moreni is presented. **Geology:** Saline plug and lower salt anticline whose crests are more or less inclined. **Producing Formations:** Drader (Dacic) sand 2900 to 3250 feet. Meotic sand 4600 to 6000 feet. Dacic composed of fine to coarse sands, sandy marls and marls with beds of shale or lignite. Meotic (high pressure) is fine to coarse sands and sandy marls with few hard streaks; normal thickness, 130 feet. Meotic oil averages 36 gravity; Dacic oil averages 53 gravity. **Principal Lease Holders:** Romano-Americana; Astra-Romana Societe Anonyme. **Remarks:** All rotary drilling.

Ochiuri (Oil)

Location: Dambovitza district. **Discovery Data:** Oil seeps caused first drilling. First production in 1914. **Geology:** Salt anticline. **Producing Formations:** Two horizons: (1) Dacic-Pliocene, 1200 feet, specific gravity .850, asphalt base; (2) Meotic-Pliocene, 4000 feet, specific gravity .850, paraffin base. **Extent of Development:** Up to June 30, 1934: 243 oil wells, 6 gas wells, and 37 failures. **Deepest Hole:** No. 231 Astra Romana, completed at 4650 feet in Miocene as a failure. **Productive Area:** 1240 acres defined all sizes. **Production History:** 30,243,500 barrels cumulative total to end of 1933; 72,100 barrels total produced during first 6 months of 1934; 5250 barrels daily output from 37 wells as of June 30, 1934. **Present Activity:** Some rotary work being done. Amount unknown. **Principal Lease Holders:** Astra Romana, Credit Minier, and I. R. D. P.

Pacureti (Oil)

Location: Prahova district. **Discovery Data:** Oil seeps caused first drilling. **Geology:** Open anticline. **Producing Formations:** Dacic, soft sands, 0-1000 feet, Pliocene, yield .800-.925 specific gravity oil. Pontic, soft sands, 0-3000 feet, Pliocene, yield .825-.835 specific gravity oil. Only field in Rumania in which Pontic sand is productive. Meotic sand has prospects here of being commercially productive. **Extent of Development:** Up to June 30, 1934: 13 oil wells, no gas wells, and 10 failures. **Deepest Hole:** No. 9 Romano-Americana, 3550 feet, Pontic (Pliocene), failure. **Productive Area:** Estimated in September, 1934, at 150 acres. Not defined. **Production History:** 237,667 barrels cumulative total to end of 1933, none since then. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Romano-Americana.

Piscuri, Moreni, Gura Ocnitei, Rasvad (Oil)

Location: Prahova and Dambovitza. **Discovery Data:** First production at Piscuri in 1929 (eastern extension of Moreni area). **Geology:** Salt Anticline. **Producing Formations:** Oil and gas, mostly oil, are produced from Dacic solt sands and Meotic hard and soft sands, both Pliocene. Dacic, asphaltic base oil, comes from 300 to 3000 feet. Meotic, paraffin base oil, comes from 1000 to 6000 feet. Specific gravity of Dacic oil is .850 to 0.925. Specific gravity of Meotic oil is 0.850. **Extent of Development:** Up to June 30, 1934: 1800 oil wells, 12 gas wells, and 198 failures. **Deepest Hole:** No. 194, Romano-Americana, 7240 feet. Pontic sand. **Productive Area:** Estimated in September, 1934, at 5300 acres. Defined north and south only. **Producing Formations:** That at Piscuri is the Drader sand. **Production History:** 298,081,124 barrels cumulative total through 1933; 19,464,135 barrels produced in first 6 months of 1934; 113,000 barrels daily output from 584 wells as of June 30, 1934. **Present Activity:** Rotary. Data not available on amount of drilling. **Principal Lease Holders:** Astra Romana, Concordia, Steaua Romano, Romano-Americana, Unire and Credit Minier.

Rasvad (Oil)

Location: Prahova and Dambovitza districts; see "Piscuri."

Runcu, Chiciura, Bordeni, Gropi, Scorteni, Tontesti (Oil)

Location: Prahova district. **Discovery Data:** Anticline visible on surface. **Geology:** Anticline and terrace. **Producing Formations:** Meotic sands of Pliocene age. Soft and hard sands found at from 700 to 2500 feet. Paraffin base oil; specific gravity, 0.830. **Extent of Development:** Up to June 30, 1934: 850 oil wells, no gas wells, and 92 failures. **Deepest Hole:** No. 471, drilled by Steaua Romana to 7100 feet. Stopped drilling in Meotic (Pliocene). **Productive Area:** 4200 acres. Defined all directions. **Production History:** 46,311,350 barrels cumulative total to end of 1933. 1,233,900 barrels produced in first 6 months of 1934. 6650 barrels daily output from 257 wells as of June 30, 1934. **Present Activity:** 6 rotary rigs operating in September, 1934. **Principal Lease Holders:** Many companies, including Romano-Americana and Steaua Romana.

Sarmasel (Gas)

Location: Transylvania district. **Discovery Data:** Drilling for potash caused discovery of gas. **Geology:** Dome. **Producing Formations:** Sarmatic sand of Miocene age produces Methane gas from 600-1800 feet. **Extent of Development:** Up to June 30, 1934: 20 gas wells and 6 failures. **Deepest Hole:** Sonametan Co.'s No. 26, 2950 feet, Miocene (Mediterranean). **Productive Area:** Estimated in September, 1934, at 385 acres. **Production History:** Data not available. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Sonametan Co.

Saros (Gas)

Location: Transylvania district. **Discovery Data:** Gas seeps caused first drilling; other data not available. **Geology:** Dome. **Producing Formations:** Sarmatic sands of Miocene age produce Methane gas from 500 to 1100 feet. **Extent of Development:** Up to June 30, 1934: 14 gas wells, all productive. **Deepest Hole:** Sonametan Co.'s No. 13, depth 1170 feet; Miocene was last formation penetrated. **Productive Area:** No data available. **Production History:** Gas is pure Methane (98%). **Present Activity:** Some rotary drilling in September, 1934. **Principal Lease Holder:** Sonametan Co.

EUROPE—Roumania—*Continued*

Scorteni (Oil)

Location: Prahova district; see "Runcu," etc.

Solontz-Stanesti (Oil)

Location: Bacau district. **Discovery Data:** Oil seeps caused first drilling. **Geology:** Overthrust fault. **Producing Formations:** Oligocene, light oil, specific gravity of .810, found at 200 to 1000 feet in sand and sandstone. **Extent of Development:** Data not available. **Deepest Hole:** 3050 feet, drilled by Steaua Romana finished in Miocene. Other data not available. **Production History:** 3,119,593 barrels cumulative total to end of 1933; 63,600 barrels produced in first 6 months of 1934; 350 barrels daily yield from 86 wells as of June 30, 1934. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Steaua Romana.

Tetzcani (Oil)

Location: Bacau district. **Discovery Data:** Presence of oil seeps caused first drilling. **Geology:** Anticline—probably faulted. **Producing Formations:** Miocene yield light oil; specific gravity, .810; depth 200 to 1000 feet. **Extent of Development:** Up to June 30, 1934: 30 oil wells approximately. No gas wells, no data on failures. **Deepest Hole:** 3250 feet, drilled by Romano-Americana, dry hole. Finished in Miocene. **Productive Area:** Estimated in September, 1934, at 150 acres. **Production History:** 662,882 barrels cumulative total through 1933; 11,100 barrels produced in first 6 months of 1934; 60 barrels daily average output from 19 wells as of June 30, 1934. **Present Activity:** None in September, 1934. **Principal Lease Holders:** Romano-Americana.

Tintea (Oil)

Location: Prahova district; see "Baicoi-Tintea."

Tontesti (Oil)

Location: Prahova district; see "Runcu," etc.

Transylvania (Gas)

Location: Transylvania district; see "Bazna."

Zemes-Taslau (Oil)

Location: Bacau district. **Discovery Data:** Observation of oil seeps caused first drilling; other data not available. **Geology:** Overthrust. **Producing Formations:** Oligocene yields light oil; specific gravity: .810; depth 200 to 1000 feet. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Estimated in September, 1934, at 110 acres. Not defined. **Production History:** 3,031,383 barrels cumulative total through 1933; 73,372 barrels produced in first 6 months of 1934; 400 barrels daily output from 29 wells as of June 30, 1934. **Present Activity:** None in September, 1934. **Principal Lease Holder:** Steaua Romana.

For the foregoing data on Boldesti-Harsa field of Roumania, The OIL WEEKLY acknowledges the help of Astra Romana and Schlumberger Electrical Prospecting Company. Miscellaneous research sources were also consulted.

Oil and Gas Fields of Europe—Miscellaneous

Albania

General Information

It was reported in the *Transactions* of the A.I.M.E. (1927) that small production had been found in several wells, including: Italiana delle Minere de Selenetza Penkova 1, producing 70 barrels daily at 1800 feet; D'Arcy Exploration Company's Berat 1, yielding 500 barrels daily of heavy oil from 900 feet, and Ardunitza 1, a gas well at 3500 feet.

Bulgaria

Kasenlik (Prospect)

An oil seepage was reported to have been found near Kasenlik, on the north side of the Marica Valley.

Greece

Zante (Oil)

Location: Sometimes known as Keri; situated on the southwest coast of the Island of Zante, Ionian Islands, Greece, in the parish of Keri, 17 kilometers from the town of Zante, capital of the Island. **Discovery Data:** First mentioned by Herodotus, 484 B. C. Drilling started in 1927, and is still being carried on all over Zante by a new concession granted by the Greek government in May, 1933, to D. J. Colaitis of Zante and H. H. Rushton of 19 Basinghall St., London, England. Oil was struck also at Kourvuli in the village of Lithakia, five kilometers from Keri. **Geology:** Dome. **Producing Formations:** Dolomite, Clay, Sand, Shale, Gypsum. **Extent of Development:** Seven active wells and one plugged up to June 30, 1934. **Deepest Hole:** 260 feet gravel sand. **Productive Area:** According to Dr. Wade's idea the whole of Zante possesses oil but in depths much deeper than at Keri. Mr. A. Tchakonas, inspector of mines in the ministry of finance, who is following the drilling, is of the same opinion. **Production History:** Total amount produced from discovery to end of 1933: 3000 tons. From January through June, 1934, the Ministry of Communications has taken up 600 tons. Daily production as of June 30, 1934: 60 tons. At present a refinery is being put up at Krio Nero in the outskirts of the town of Zante. **Present Activity:** Two rigs in use June 30, 1934. **Principal Lease Holders:** D. J. Colaitis of Zante, Greece, and H. H. Rushton of London, England.

The foregoing data on Zante district, Greece, was prepared for The OIL WEEKLY by William C. Young of Patras, American Vice Consul, Patras, Greece.

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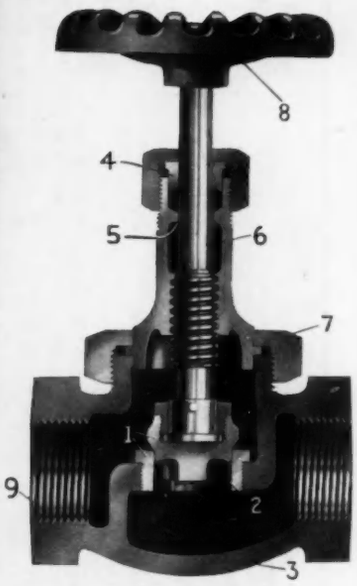

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EUROPE—Miscellaneous—*Continued*

Hungary

General Information

Gas that was trapped from flowing artesian wells has represented the extent of gas production in Hungary, while there has not been any oil production.

Some efforts are being made, however, to develop production. In 1934 the government abandoned a 1500-meter test near Tisztaberek, northeastern Hungary. Early in 1935 it was drilling below 900 meters in a test near Bogacs, about 120 kilometers northeast of Budapest.

It is indicated that several tests will be drilled in 1935, as the European Gas & Electric Company has rigged up on a site near Mihalyi in Trans-Danubia, while it is understood the government contemplates drilling two tests.

Sweden

General Information

Sweden has large oil shale deposits. In 1923 it was reported that the government was sponsoring experimental work, and that a small plant had been erected at Kinnekulle. Tests there indicated that oil suitable especially for Diesel engine fuel could be produced commercially.

Island of Oeland (Prospect)

Location: State of Kalmar Län; district of Island of Oeland; field is east from Kalmar. **Discovery Data:** Gas seepages; the Swedish Diamond Rock Drilling Company has drilled 11 holes. **Geology:** Anticlinal and monoclinal structure. **Producing Formations:** None commercially productive up to January 25, 1935. **Extent of Development:** Test and structure drilling only up to January 25, 1935. **Deepest Hole:** Data not available January 25, 1935. **Principal Lease Holders:** Svenska Diamantbergborrnings Aktiebolaget (The Swedish Diamond Rock Drilling Company).

For data on the gas prospect on the Island of Oeland, Sweden, The OIL WEEKLY acknowledges the co-operation of Aktiebolaget Elektrisk Malmletning.

Switzerland

Lintheban (Prospect)

A deep test near Lintheban ceased drilling at 3300 meters in 1927. Prospective drilling being contemplated in Switzerland early in 1935.

Oil and Gas Fields of Africa—Egypt

Egypt

Abu Durba (Oil)

Location: On the eastern shore of the Red Sea, in the Sinai peninsula. **Discovery Data:** Field was discovered through exploratory work of the Egyptian government in 1918. First production was from a well 172 feet deep. **Geology:** Data not available. **Producing Formation:** Around 175 feet. **Extent of Development:** Prior to 1923, the Egyptian government had drilled nine wells. From some of them small quantities of oil had been produced at shallow depths. In early 1931 the field had 15 producing wells, with only a very small combined production. **Production History:** Cumulative production to the end of 1930 was 7,069 tons. **Principal Lease Holder:** Anglo-Egyptian Oilfields, Ltd., a constituent corporation of the Royal Dutch Shell group.

Gemsah (Oil)

Location: On a peninsula halfway between the axes of the Zeit range and the range of mountains to the west. Field is 14 miles south of Gebel Zeit. It is on the west coast of the Red Sea. **Discovery Data:** DeBay, having observed seepages, drilled to 196 ft. in 1886. Prior to obtaining the first commercial production in 1909 at 1284 ft., two Americans had drilled, one getting 25 bbls. of .23 Be. gravity oil at 425 ft., the other getting showings of oil at 1310 ft. and at 2000-2012 ft. **Geology:** Field is on a buried granite hill which is reflected in the surface structure, an exposed anticline. Oil is confined to a narrow belt east of the axis and along the seashore. **Producing Formations:** Oil production found at 425 ft., 1284 ft. and 1610 ft. Present production comes from depths ranging from 1640 to 2100 ft. (in 1926). Oil is 39.5 gravity and comes from coral reef dolomite. **Extent of Development:** Data not available. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** Peak of production was reached in 1914, when output was 88,000 tons. In 1926 output of field had dropped to 250 bbls. per day. Total production to end of 1930 was 182,870 tons. By then production had practically ceased, due to salt water intrusion. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Anglo-Egyptian Oilfields, Ltd. (Royal Dutch Shell interests).

Hurghada (Oil)

Location: On western shore of Red Sea, 180 miles south of Suez. Sometimes field is referred to as Rarquada. **Discovery Data:** Observation of oil smelling limestone caused first drilling. Discovery well was Anglo-Egyptian's No. 1; completed in October, 1914, at 1688 feet; initial production 1500 tons; gravity .917. In 1911, prior to drilling, W. F. Hume found oil smelling limestone at the surface. **Geology:** Anticline with faulting as important feature—a reflected buried hill of granite. Oil is only in the western of two parallel surface anticlines. **Producing Formations:** Soft sands and sandy shales of the Cretaceous, found at from 1400 feet to 2000 feet; gravity, 0.92; mixed base. One research source says that this Upper Cretaceous producing horizon is composed of sandy shale, the Nubian sandstone and brecciated and weathered surface of the granite. **Extent of Development:** 109 producers and 13 failures completed from discovery through June 30, 1934. **Deepest Hole:** Anglo-Egyptian Oilfields, Ltd's 101; depth, 2222 feet; completed April, 1934; finished in granite; initial production 37 tons daily. **Pro-**

McEvoy Blowout Preventer Inserter

Figure 24

Mechanically operates standard types of packing assemblies under derrick floor.

Features: **CERTAINTY OF SEALING and HIGH SPEED. Simply pull lever and pressure gun shoots packing assembly around pipe. Less than 30 minutes to change packing assemblies.**

This new mechanism is attached to your present manual type blowout preventer equipment.

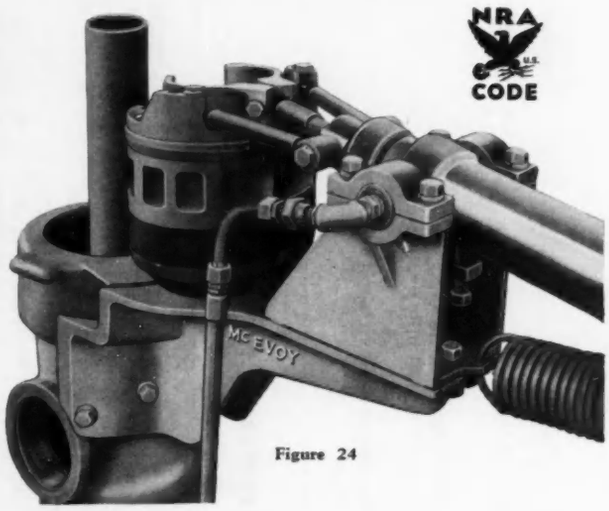

Figure 24

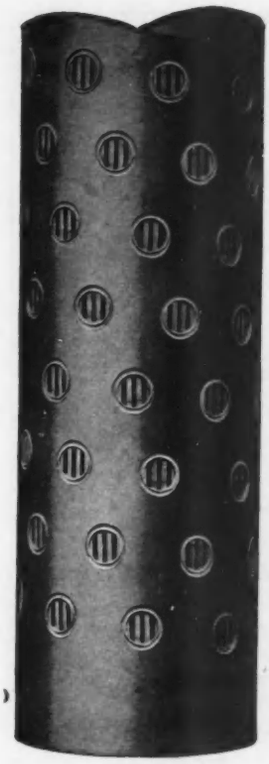

Figure 1
McEVOY IMPROVED WIRELESS WELL STRAINER. Always hits bottom in perfect condition.

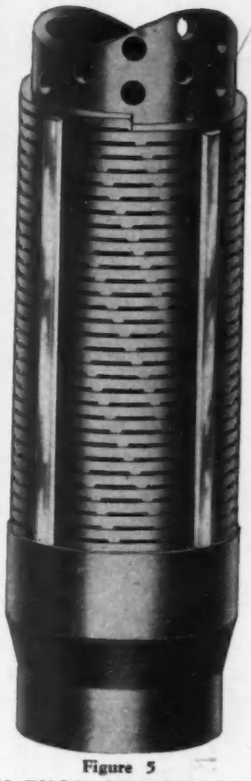

Figure 5
McEVOY PREFORMED WIRE STRAINER. The only strainer with preformed wire.

WHEN YOU THINK OF PRECISION... *Highest Quality* ...and SAVING MONEY

Refer to McEVOY *Section* 1935 Edition Composite Catalog of Oil Field and Pipe Line Equipment

...for description of these and other McEVOY products... and communicate with us.

(Patented)

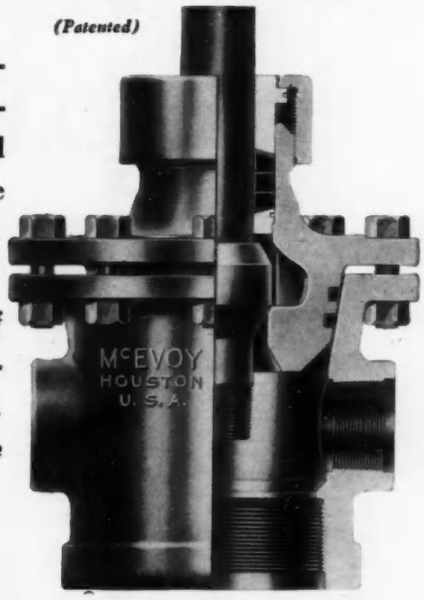

Figure 17
McEVOY TYPE M HEADS. Latest design in tubing heads for wells flowing under pressure. Refer to Composite Catalog, page 636.

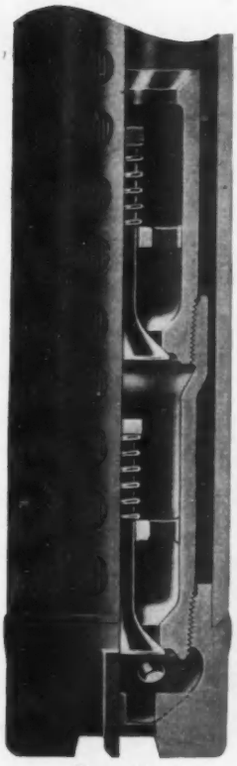

Figure 8

Figure 8A

Figures 8 and 8A
TYPE B SET SHOE ASSEMBLIES. Short type, permitting setting of strainer much closer to bottom of the hole. Pioneered by us.

Established 1906

J. H. McEVOY & CO.

TEXAS AVE., AT MILBY ST.
HOUSTON, TEXAS

AFRICA—Egypt—*Continued*

ductive Area: 1000 acres proven for oil; defined on three sides as of November, 1934. **Production History:** 3,586,577 tons to end of 1933; 104,718 tons in first 6 months of 1934; Daily average, 647 tons as of June 30, 1934, coming from 73 producing wells; gravity, 0.92. **Present Activity:** 2 cable tool rigs running as of June 30, 1934. **Principal Lease Holder:** Anglo-Egyptian Oilfields, Ltd. (Royal Dutch Shell interests).

Rarquada (Oil)

Location: On western shore of Red Sea, 180 miles south of Suez; see Hurghada.

For a major portion of the foregoing information on Hurghada field, Egypt, The OIL WEEKLY is indebted to Anglo-Egyptian Oilfields, Ltd.

Oil and Gas Fields of Africa—Morocco

Morocco
(A French Colony)
General Information

Up to the beginning of 1934, crude oil production in Morocco had aggregated only about 2400 barrels, all of which was from exploratory wells.

More important development commenced in 1934, however, when production of commercial proportions was established in the Djebel Tselfat area.

Djebel Tselfat (Oil)

Location: North Central Morocco; Petitjean District; sometimes known as Tselfat; on the Casablanca-Algiers-Tunis railway lines, immediately north of Meknes and west of Fez, about equally distant from Rabat and Taza; field lies in the foothills of the Riffian Mountains. **Discovery Data:** Indications date back to 1880; seepages; geophysics; discovery well was Tselfat, La Societe Cherifienne des Petroles, finished in 1934, 380 meters depth, initial production 1500 barrels per day; gravity of oil, unknown. Early in 1933 a report indicated that two wells had been completed the previous year near Djebel Tselfat, each yielding about 50 barrels of oil daily; but that the wells were not being commercially produced at the time of the report. **Geology:** Anticline of Jurassic rocks beginning 31 kilometers north of Meknes. Information received is to the effect that the appearance of the soil is very similar to that on which oil was discovered in principal California fields, U.S.A. One source says, "The strata is said to belong to the Tertiary epoch, the anticlinal folds running north-south in the Spanish zone and turning east-west with the Riff range in the French zone. Faults in the strata reveal outcrops of oil bearing sands." **Producing Formations:** Upper zone imbedded with deposits of clay marl. Initial production from this zone ranges from 1000 to 4000 liters. A second zone at 330 meters depth (50 meters thick) is of oil bearing limestone and thought capable of gusher production. Oil from the second zone contains 60 percent gasoline and lamp oils. It is 44° A.P.I. gravity at 60° F. **Extent of Development:** Small amount, but it is said the most promising portion of the field is that lying in the Gharb region in the neighborhood of Ouezzan in the French protectorate. Although only a few productive wells have been completed, statistics in the *Transactions* of the A.I.M.E. Volume 107, indicated that at the beginning of 1934, 23 dry holes had been drilled in the Tselfat area, including 21 to depths of 300 to 1000 feet, one to 1000-2000 foot depth, and one between 2000 and 3000 feet deep; while three additional exploratory tests were drilling. **Deepest Hole:** See data on discovery well. **Productive** Area; Undetermined; not sufficient drilling as of August, 1934. **Production History:** Data not available. **Present Activity:** One well drilling in 1934. **Principal Lease Holders:** It is understood that the present development is being carried on by the Societe Cherifienne des Petroles and that the owners of the field are the French and Moroccan governments.

Gharb District (Prospects)

General Information: It was reported in 1931 that a French corporation, Compagnie Francaise de Petroles de Maroc, had been prospecting in the Gharb district since 1920.

A report in 1930 indicated that a well in the Gharb district, near Ouezzan, drilling at 285 meters, or about 935 feet, had encountered some small quantities of oil. (It is not clear to the compiler of this information whether or not the well referred to was the same as that which developed into the discovery well of the Djebel Tselfat field, herewith listed.)

Statistics in the *Transactions* of the A.I.M.E., Volume 107, indicated that at the beginning of 1934, a total of 58 dry and near-dry holes had been completed in the Gharb district. Among them were 34 tests 300 to 1000 feet deep, some of which were put down for geological information only; 19 tests ranging in depth from 1000 to 2000 feet; two that were from 2000 to 3000 feet deep; one in the 3000-4000 foot range; one in the 4000-5000 foot depth class; and one that was 7014 feet deep (at Souk el Arba area, which see). At the beginning of 1934, one exploratory test represented the extent of drilling in progress in the Gharb district.

Souk el Arba (Non-commercial Oil)

General Information: This area is located in the Gharb district; near Fez; within general region of the Djebel Tselfat field, which see.

It was reported about the middle of 1932 that a well at Souk el Arba in the Gharb area had encountered a formation at 150 meters which yielded about 13 metric tons oil production daily. But at the beginning of the following year, no commercial production was in progress.

About the end of 1933 information indicated that a well at Souk el Arba had established a deep drilling record for Morocco, reaching 7014 feet before being abandoned. That deep test had encountered oil-bearing zones at shallow depths in the Miocene and showings of oil and gas in the Eocene formations, but had failed to develop production of commercial proportions. (It is not clear to the compiler of this information whether or not this deep test is the same as that mentioned in the preceding paragraph.)

The OIL WEEKLY acknowledges the helpful co-operation of L. G. Keena of Casa Blanca, Morocco, on a major portion of the above data on Djebel Tselfat field.

"The Oil Bank of America"

OIL PRODUCTION LOANS

The facilities and resources of this bank and the broad experience and intimate understanding of its Officers and Directors, enable the National Bank of Tulsa to render a distinctive type of service to Mid-Continent Oil Operators in negotiating production loans and financing their operations.

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Oil and Gas Fields of Africa—Miscellaneous

Algeria

General Information

Algeria has not been considered important enough to list as such as an oil producer among the producing nations. Instead, it is carried under the miscellaneous heading which includes those countries not producing sufficient oil to have an effect upon petroleum markets. The country has not produced a total of a quarter million barrels since 1914.

In addition to the Tlouinet field, detailed data on which appears below, a small well was completed in 1932 near Taza, at Mesquitem, for a reported initial production of five barrels per day.

Ain Zeft (Oil)

General Information: Located in the department of Oran. Production from depths around 715 meters. In the fore part of 1912 the field produced, by pumping, 1860 hectolitres. One well here (See "Chelif Valley District") produced about 10,000 barrels from 1904 to 1914.

Chelif Valley (District)

This is a general area, on which certain statistics are available, and embodies various individual areas, some of which are herewith shown separately, such as Ain Zeft.

In Volume 107 of the *Transactions* of the A.I.M.E. it was shown that 29 dry or near-dry holes had been completed in the Chelif Valley prior to January 1, 1934. That total included 14 tests drilled to depths of 300 to 1000 feet, eight drilled to depths of 1000 to 2000 feet, two to 2000-3000 feet, three to 3000-4000 feet, and two to depths of 4000 to 5000 feet. Included among the eight tests to depths of 1000 to 2000 feet was one at Ain Zeft (which see), that produced about 10,000 barrels from 1904 to 1914.

Tliouanet (Oil)

Location: In the Dhara region of Oran district. **Discovery Data:** About 1914. **Geology:** Dome. **Producing Formation:** Oil comes from the Helvetien sand, of Miocene age; paraffin base; range of gravity (A.P.I.) from 39 to 47.6; average completion depth, 330 feet. **Extent of Development.** 16 oil wells and 67 failures to end of 1933. No completions in 1933 and 1934. **Deepest Hole:** Zone tested was Cretaceous; data on depth not available. Of the 67 dry holes drilled to end of 1933, five were from 1000 to 2000 feet deep, and the other 62 were less than 1000 feet deep. **Productive Area:** 14.8 acres in 1934. **Production History:** 179,500 barrels cumulative total to end of 1933. Yield in 1933 was 4270 barrels from 5 pumping wells and 1 flowing well. **Present Activity:** None in 1935. **Principal Lease Holder:** Societe Algerienne de Petroles de Tliouanet.

Angola

(A Portugese Colony)

(Prospects)

Numerous oil seepages have been known for many years on the coastal plain of Angola. Exploratory work has been in progress since about 1915. In 1931 it was reported that several tests had been drilled in the colony. Late in 1932 the Companhia de Petroleo de Angola, controlled by Sinclair Consolidated Oil Corporation, and operating under a concession from the Portugese government, was drilling a second test at Cacoba, about 60 miles southeast of Loanda. The company's first test in the area, drilled in 1931-1932, reached 5651 feet, without developing commercial production.

Belgian Congo

Kilo Moto (Prospect)

Oil seepages have been found in the Kilo Moto district, Belgian Congo, on the shore of Albert Nyanza lake.

Madagascar

(A French Colony)

General Information

Evidence of oil has been found in West Madagascar. Oil shales have been found in the provinces of Majunga, Moevabanana, and Morondava.

Mozambique

(A Portugese Colony; Portugese East Africa)

Inyaminga-Beira (Prospect)

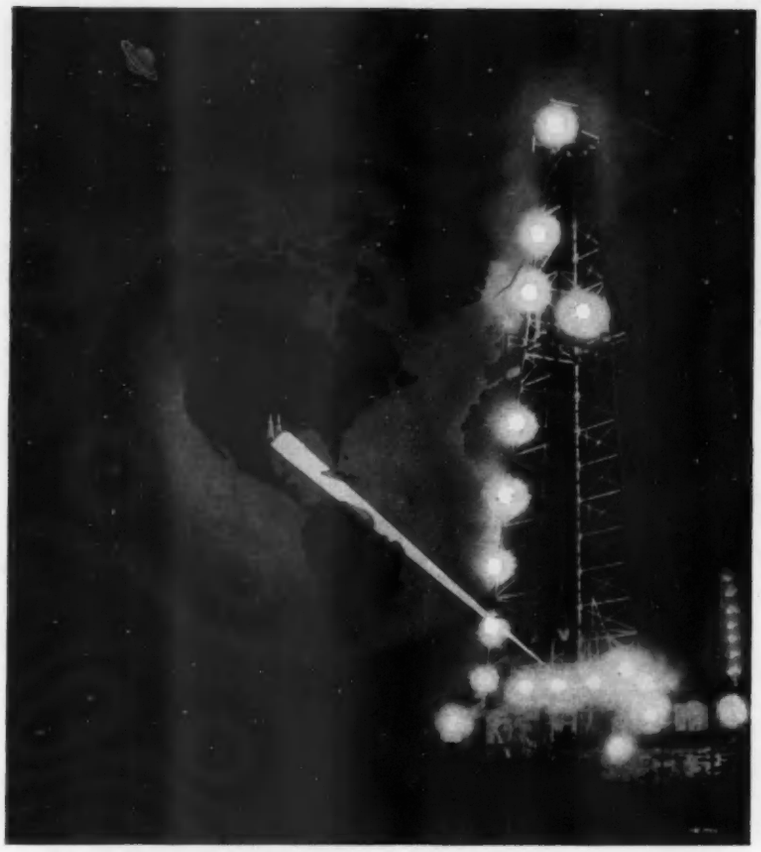
In 1923, the Inyaminga Petroleum, Ltd. (financed by South African interests), began to exploit petroleum deposits, which had been discovered a year earlier, near Beira. In that area oil seepages had been found on the Trans-Zambesia railroad. Previously, an important English company had investigated the area, without becoming interested in development.

In 1927 it was reported that Inyaminga Petroleum, Ltd., had abandoned No. 1 well at 1270 feet; that No. 2 well, near Inyaminga railroad station, was yielding gas from 1188 feet. The No. 2 well was reported in early 1931 to have reached 2763 feet without developing commercial production, although having encountered several showings of oil. Early in 1933 it was reported that the company had suspended operations in the area.

Somaliland

General Information

Unfavorable results were obtained about 1930 in geological work done by the Somaliland Petroleum Company, Ltd., subsidiary of the Royal Dutch Shell group.



SPOTLIGHT OF OILDOM DIRECTED ON GULF COAST

The eyes of oil men everywhere are turned to that section of the oil world where is producd 40 per cent of the oil of the United States and 24 per cent of the oil of the world . . . the Gulf Coast.

Here electricity is playing a part commensurate with the immense production of this area . . . making possible quick movement from lease to lease; quick change from drilling to pumping; flexibility; less labor and less depreciation costs.

Executives who take all cost factors into consideration before purchasing power are invited to talk their problem over with our engineers.

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BEAUMONT, TEXAS **LAKE CHARLES, LA.**

AFRICA—Miscellaneous—*Continued*

Tunis
(A French Colony)
General Information

Tunis offers considerable promise for commercial oil development, although past results have not been very successful. Various favorable prospects are present.

The area with oil possibilities is principally within a half circle of which Tunis is the center point and Bizerte as the starting point.

Oil indications include presence of bitumen, liquid oil, and oil shales.

Statistics on drilling in Tunis were presented in the *Transactions* of the A.I.M.E., Volume 107, showing that prior to January 1, 1934, a total of seven dry or near-dry holes had been completed, including one that reached 5130 feet, two ranging in depth from 2000 to 3000 feet, one in the 1000-2000 foot depth range, and three from 300 to 1000 feet deep.

Djebel-bou-Debbouz (Oil)

General Information: This area was the most important producing area in Tunis in 1923, having at that time output of about 20 liters daily. The oil, produced along with much salt water, was black, thick, and had specific gravity of about 0.950 at 15 degrees Centigrade.

Miscellaneous (Prospects)

The A.I.M.E. report on petroleum in 1923 is authority for the following information on Tunis prospects:

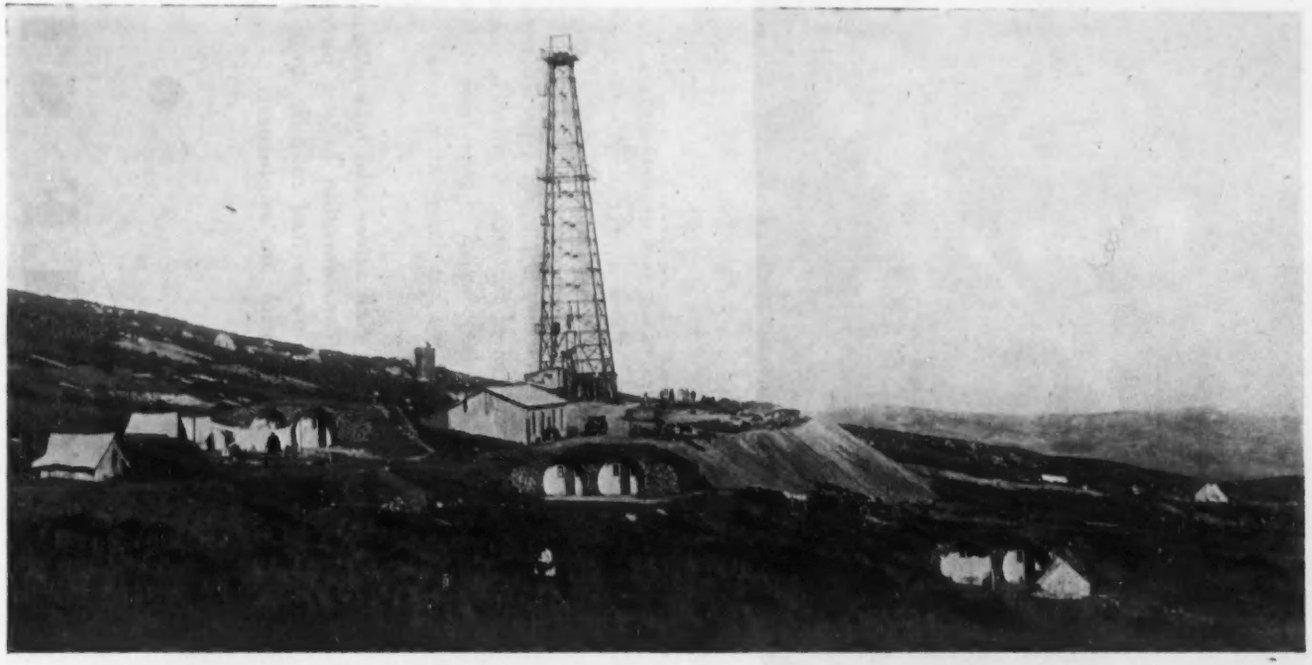
Oil shale deposits are present at Djebel Kebbouch, about 15 kilometers east of Kef; and at Djebel Maiza, southeast of Djebel Kebbouch.

Traces of oil were found near Djebba Kebbouch and Fedji el Adoun. Favorable indications had been found at Djebels Naheli and Ayari, near Ariane (asphaltic limestone); at Djebel bou Kornine (bitumen); at Djebel Siara and l'Oued Gattouna in Turonian (traces of oil); at Sidi-Salem, near Gattouna (traces of oil); at Djebel bou Kahil, region of Krib (bituminous limestone with oil traces); at Djebel El Rihana, northwest of Kairouan, water springs with oil odor, near Ain-Teffila, Ain-Barka, Ain-Kibrana, in inferior Eocene; at Oued El Kebir, near Maktar (asphaltic limestone.)

Some oil, of 0.844 specific gravity, had been found at Djebel Maina.

Union of South Africa
Devon (Prospect)

A showing of oil was reported in 1927 in a well drilled 65 miles southeast of Johannesburg by the Devon Prospecting Syndicate.



One of the wildcat wells at Tselfat, Morocco. Photograph courtesy Bureau des Recherches et Participation Miniers of the French Protectorate of Morocco.

WORLD OIL SURVEY

Russia

Including Sakhalein

The center cluster of derricks is the heart of the old North Baku field, which is in one of the world's most important oil-bearing areas

Oil and Gas Fields of U. S. S. R. (Russia)

General Statements

Some idea of the importance of Russian oil fields and promising structures is suggested in the following excerpts from the foreword to the paper on U. S. S. R. in "Transactions of the American Institute of Mining and Metallurgical Engineers, 1934, Volume 107:

"Russia is at the worst a good second to the United States in petroleum reserves, and for a long time to come will be a most important factor in the petroleum markets of the world."

The Russians are searching for and producing oil in "such far-flung areas as the Arctic Tamir Peninsula, Kamchatka and Sakhalin on the Pacific, Lake Baikal in Central Siberia, the great new discovery at Neftedag in the plains of West Turkestan, and the oil of the Ferghana oasis, where the derricks look out over to the mosques of Kokand."

Fields of U. S. S. R. presented herein are arranged systematically from east to west across the country, and then to the north, except for areas where there are various fields in the same district, such as Baku, with numerous pools. Such pools are alphabetically arranged under their proper districts.

In compiling the information herewith presented on the oil fields of U. S. S. R. (Russia), valuable assistance was obtained from various oil companies and from reports of Soviet authorities. And for much of the data acknowledgement is given to the *Transactions* of the American Institute of Mining and Metallurgical Engineers, from 1921 through 1934. Especially helpful were papers in that series by B. B. Zavoico, covering a period of six years.

Kamchatka (Prospects)

Location: West central portion of Kamchatka Peninsula. **Discovery Data:** Several favorable structures and indications of oil were uncovered prior to 1934 in the regions of Voyampolki, Tagil, and Bogachev. Oil seeps occur in many places. There are numerous mud volcanoes along the eastern slope of the mountains. **Geology:** Major zone of weakness suggested by mud volcanoes on east slope of mountains. Oil fields expected nearer shores of Okhotsk Sea. Kamchatka oil shows are apparently related to Sakhalin seepages. **Extent of Development:** Geological and geophysical expeditions were sent into Kamchatka during 1934, resulting in discovery of additional evidences of oil and a series of promising formations. But no actual oil production has been established.

Sakhalin Island

General Data: Island of Sakhalin (or Saghalien), is north of Japan. Through 1927, Sakhalin's production was from Okha field. Signs of oil had been found prior to 1934, on the Schmitt Peninsula. Favorable structures had been revealed, through geological exploration, in the areas of Katangli, Garamai, Langeri, Ekhabi and Nutova. Sea is open only 4½ months of year, interfering with development, necessitating large storage facilities. **Production History:** Sakhalin's production started in 1923, with 6923 barrels; 84,000 barrels in 1924; 100,000 barrels in 1925; 130,000 in 1926. **Principal Lease Holders:** Japanese companies have checkerboard concessions on the Island, along with Russia's Sakhalin Oil Trust.

Okha (Oil)

Location: In northern extremity of Sakhalin Island; between Baikal and Urkt Bays. **Discovery Data:** First production in 1923, when output was 6923 barrels. Russians did not obtain first production, however, until 1928. Output in 1924 was 84,000 barrels; in 1925, 100,000 barrels; in 1926, about 130,000 barrels. **Geology:** A 15° anticlinal fold. **Producing Formations:** Shallow sands yield oil of 17 or higher gravity; deeper sands, however, furnish most of field's output, yielding oil averaging about 21 gravity; some of the deeper production ranges as high as 40 gravity. Fourth horizon at 650 feet, was under development in 1929, yielding wells producing 75 to 250 barrels daily initially. Fifth horizon, just opened then, yielded 500-barrel wells at 950 feet. Through 1927, production was from 150-barrel wells at 350 to 770 feet. **Extent of Development:** Cold winters interfere with development. In 1929-1930 drilling aggregated 18,000 feet. Through 1927, 11 wells had been drilled (all by the Japanese), deepest being 2490 feet. Five oil horizons had been found. Oil was heavy, 22 Beaume gravity. **Production History:** Sakhalin production figures, largely representing Okha output, follow: 181,000 barrels in 1926; 440,000 barrels in 1927; 677,000 barrels in 1928; 1,160,000 barrels in 1929; 1,670,000 barrels in 1930; 2,000,000 barrels in 1931. At beginning 1930 Russians had 11 producing wells, averaging 100 barrels daily each, and four wells drilling. **Present Activity:** No data available. **Principal Lease Holders:** Sakhalin Oil Trust (Russian) and two Japanese companies. Note: Okha was the only field yielding commercial production lately in Sakhalin.

Nutova (Oil)

Location: In northeastern portion of Sakhalin Island, 70 miles south of Okha field. **Discovery Data:** Data not available. **Geology:** 80° dip east and 60° dip west, sharp fold. **Producing Formations:** Relatively deep sands yield 40 gravity oil. **Extent of Development:** Through 1927 three wells had been drilled (all by the Japanese) aggregating 3300 feet of hole; seven oil sands were found, yielding 40° gravity, Beaume, oil, containing 30 percent gasoline, 30 percent kerosene. **Present Activity:** Field has not been commercially productive lately. **Principal Lease Holder:** Sakhalin Oil Trust.

Miscellaneous (Prospects)

Location: Along eastern coast of northern portion of Sakhalin Island. **Discovery Data:** Oil indications or favorable structures have been reported at Ekhabi and Piltun (between Okha and Nutova fields), Chaigo and Katangli, (south of Nutova), Nyivo, Ouigle Kouti, Liangeri, and Goromai. **Extent of Development:** In Katangli area five tests had been drilled through 1927, total drilling 4500 feet, showing heavy oil of Okha type.

Miscellaneous Russian Fields

Lena River Mouth (Prospects)

Discovery Data: Indications of petroleum were found by the Soviet prior to 1934, at the mouth of the Lena river on the Tamir Peninsula and on the Minusinsk steppes. Additional geological and geophysical work was in progress in 1934.

RUSSIA—Miscellaneous Fields—*Continued*

Lake Baikal Region (Prospects)

Location: In and adjacent to Lake Baikal, at head of Lena River, north central Asia, north of Mongolia. **Discovery Data:** In 1934 the Soviets were completing geological explorations, revealing favorable structures. **Extent of Development:** Indicated on a Soviet map in 1934 as a producing oil area.

Fergana Region

General (Oil)

Location: In Turkestan, Middle Asia, 150 miles north of Afghanistan-India border. **Discovery Data:** See specific fields of this region. **Geology:** Anticlinal structures. **Producing Formations:** Fergana strata of the Eocene period, in all fields of the Fergana Valley. But oil discovery at Haudaz (which see) about 1934 has given promise of deeper pay horizons in the Fergana region. **Production History:** Cumulative production to 1917 was 3,620,000 barrels. Produced 213,000 barrels in fiscal year 1925-1926; same amount 1927-1928. **Principal Lease Holder:** Middle Asia Oil Trust.

Chimion (Oil)

Location: See "Fergana Region: General." On Trans-Caspian railroad. **Discovery Data:** Had production prior to 1921. **Geology:** Anticlinal structure. **Producing Formations:** Fergana strata, Eocene age. Average depth of producing wells about 1000 feet. **Extent of Development:** Limited. Field has good possibilities for production from deeper zones. **Production History:** In 1926 was producing about 25 percent of Fergana region's total output, or about 25,000 barrels for the year, from 72 wells, oil horizons having been encroached on by water. In better days Chimion produced over 100,000 barrels a year. Oil here is around 30 gravity (Beaume) and contains 8 percent gasoline, 25 percent kerosene, and 60 percent fuel oil. **Principal Lease Holder:** Middle Asia Oil Trust.

Sel-Rokro (Oil)

Location: See "Fergana Region: General." **Geology:** Anticlinal structure. **Producing Formations:** Fergana strata, Eocene age. **Extent of Development:** Limited. Field regarded as having good possibilities for deeper pay zones. **Production History:** In 1926 field was producing about 75 percent of Fergana region output, or around 75,000 barrels a year, from 26 wells. Oil is around 30 Beaume gravity, and contains 8 percent gasoline, 25 percent kerosene, 60 percent fuel oil. **Principal Lease Holder:** Middle Asia Oil Trust.

Shor-Sou (Oil)

Location: See Fergana region; in Turkestan, Middle Asia, near railroad station Posetovka. **Discovery Data:** First well drilled here was completed about 1927, flowing 400 barrels daily at first from 650 feet. **Geology:** Anticlinal structure. **Producing Formations:** Fergana strata, Eocene age, around 650 feet. **Productive Area:** Estimated at about 1600 acres. **Principal Lease Holder:** Middle Asia Oil Trust.

Miscellaneous (Prospects)

Location: In Fergana Region, which see. In Turkestan, 150 miles north of Afghanistan-India border. In Middle Asia. **Discovery Data:** In 1933 the Soviets reported they had found, through geological and geophysical work, 53 structures with considerable indications of oil in the country surrounding the Fergana Valley. It was said that on the basis of the geophysical data the Fergana Valley itself had been established as being of great value, and drilling within a short time was contemplated. **Production History:** In 1921 it was reported that oil output of the Fergana district had formerly reached 450,000 barrels a year. **Principal Lease Holder:** Middle Asia Oil Trust.

Haudag (Oil)

Location: In Central Asia. **Discovery Data:** A well drilled in 1934 in central part of the structure was completed at depth of 174 meters, flowing 200 tons daily. **Geology:** Fold, extending about 12 kilometers, irregularly, with branches. **Producing Formations:** Limestones of Paleocene age, found lower geologically than the Fergana strata, Eocene age, from which production has been coming in fields of the Fergana Valley. **Principal Lease Holder:** Middle Asia Oil Trust.

Central Asia (Prospects)

Discovery Data: Oil seepages from deposits of the Ursk age occur in the Taurdag region. Oil seepages from formations of Paleozoic age occur in Tashkent. In early 1935 over 60 folds were known to exist in the Central Asia region. There were various evidences of oil, in strata extending from Tertiary to Paleozoic age, giving promising outlook for Central Asia. Middle Asia Oil Trust has charge of operations.

Khanabad-Sai (Oil)

Location: In middle Asia. **Discovery Data:** Field discovered short time prior to 1934; other data not available. **Geology:** Data not available. **Producing Formations:** Data not available. **Extent of Development:** By opening of 1934, field had two producing wells, after having been discovered short time before. **Principal Lease Holder:** Middle Asia Oil Trust.

Neftedag (Oil)

Location: On eastern side of Caspian Sea, in western Turkestan (or Turkmenia); across sea from Baku. About 27 kilometers south of the Neftedag junction of the Central Asia railroad. **Discovery Data:** Numerous oil and gas seepages and mud volcanoes along western shore of the Caspian led to exploration. In 1882-1887 five wells were drilled. In 1882 one well yielded 70 barrels daily at 390 feet. In 1884 a well yielded 21 barrels daily from below 400 feet. No further development until 1927, when three dry holes were drilled. One of those dry holes was slightly deepened later and at 1575 feet yielded 3500 barrels in first 3½ hours. Another well, deepened, was rated at 35,000 barrels daily. **Geology:** Similar to Baku district. Anticline with axial extension running sw ne. Oil in two separate areas, northern and southern. **Producing Formations:** Data not available. **Extent of Development:** Early in 1934 it was reported that the field's thirteenth gusher yielded 250,000 metric tons of oil in 16 days. **Principal Lease Holder:** Turkman Oil Trust.

Cheleken Island (Oil)

Location: In Turkestan, along east side of Caspian Sea. Near Krasnovodsk. Oil in sw corner of the island. **Discovery Data:** Oil seepages, gas seeps, salt and sulphur waters, and mud volcanoes led to drilling. Moderate development for many years; but in 1911 and later there were large yields from wells in the Ali Tepe district, sw part of field. **Geology:** Similar to Baku district. There is present a dome with major axis trending northwest-southeast, and with much

RUSSIA—Fergana Region—*Continued*

faulting parallel to the axis. **Producing Formations:** Best flowing well was a 600-foot well yielding 55,000 barrels daily. **Extent of Development:** Limited. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** Cumulative production to 1917 was 7,317,000 barrels. Maximum yearly production was 1,600,000 barrels in 1911. Output had declined by 1926 to 150,000 barrels. Oil is around 33 Beaume gravity, and contains by straight-run refining 14 percent gasoline, 27 percent kerosene, 56 percent fuel oil. **Present Activity:** Data not available. **Principal Lease Holder:** Turkman Oil Trust.

Turkmenia (Turkestan), General (Prospects)

Location: East of the Caspian Sea. **Discovery Data:** In 1933 the Soviets reported they had made geological explorations in Neftedag (now productive of oil), Boyadaga, Monzhykli, Sirtlali, Chikishlyari, and Keimir; and favorable structures were found in Mingishlak, with good indications of oil. **Principal Lease Holder:** Turkman Oil Trust.

Baku District

General (Oil)

Location: On and adjacent to the Apsheron Peninsula, Caucasus; around town of Baku. **Discovery Data:** First production about 1880. Output reached 100,000 barrels in 1892, and has been above that figure since. Geological work after 1924 revealed Kirmakin strata in region of Baku. **Producing Formations:** Loose sands. Total thickness of Baku producing series, the Pliocene "Oil Measures" is 6000 feet, 75 percent being sand, rest shale. Originally, actual pay horizon comprised about 2000 feet net oil bearing sand. There are about 30 separate pay horizons, although only a few are prolific at any one place—except at Bibi-Eibat, where saturation is extraordinary. Besides "Oil Measures" of Pliocene, the Miocene and Oligocene formations have oil in outcrops, and may produce at Baku, by drilling to 5000-7000 feet. Present depth of new wells in area is around 2750 feet. **Productive Area:** Twelve square miles embrace all fields of Baku district. **Production History:** Baku district produced 62,100,000 barrels, or 170,000 barrels daily, in fiscal year 1928-1929; and 73,977,000 barrels oil in fiscal year 1929-1930. From 1880 to July 1, 1929, the district had produced 2,000,000,000 barrels from an area of 6170 acres, an average recovery of 324,000 barrels per acre (including two relatively new fields, Surakhany and Bibi-Eibat Bay extension). In 1929, area was averaging 180,000 barrels output daily from 3567 wells: 29 percent flowing, 36 percent pumping, 29 percent air-gas lift. **Present Activity:** Most drilling by rotary. In fiscal year 1929-1930 drilling aggregated 402,586 meters; in 1928-1929, 1,050,000 feet; in 1927-1928, 860,000 feet. **Principal Lease Holder:** Azneft Oil Combine. **Note:** In 1928, Baku's remaining recoverable oil reserves were estimated by B. B. Zavoico, engineer and geologist, at 2 to 3 billion barrels, considering deeper drilling possibilities.

Atashka (Oil)

Location: In Baku district; on Apsheron Peninsula, several miles west of Bibi-Eibat field. **Discovery Data:** Oil measures exposed along the denuded crest of a sharp fold. For many years peasants took oil from hand-dug wells. First important production was in 1914, when a 700-foot well flowed 125,000 barrels daily. **Geology:** Sharp fold. See "discovery data." The anticline flattens at southern end. **Producing Formations:** Data not available. **Extent of Development:** Limited. **Productive Area:** Proven area estimated around 1000 acres. **Principal Lease Holder:** Azneft Oil Combine.

Baladjari (Oil)

Location: In Baku district; on Apsheron Peninsula, near Baladjari station, several miles south of Binagadi field. **Discovery Data:** Oil measures associated with large deposit of asphalt. Several productive wells had been drilled prior to 1924. **Productive Area:** Estimated in January, 1935, at 325 acres. **Present Activity:** Data not available. **Principal Lease Holders:** Azneft Oil Combine.

Balakhany-Sabuntchi-Ramani (Oil)

Location: In Baku district; 8 kilometers ne Baku; central part Apsheron Peninsula, Caucasus. These fields comprise the Lenin division. **Discovery Data:** Has produced since 1892. **Geology:** Wide faulted anticline. **Producing Formations:** See "Baku District: General Data." Only Balakhany among these fields is producing from the full section of the "Oil Measures" of the Pliocene, including the lowermost Kirmaku horizons. Latter zone should produce more extensively at Balakhany and in Sabuntchi and Ramani areas. Average depths of newly completed oil wells in 1928 were as follows: 1480 feet at Balakhany, 1825 feet at Sabuntchi, and 1950 feet at Ramani; some deeper drilling since. **Productive Area:** About 3700 acres. Undrilled acreage held in reserve and of this latter the acreage considered proved aggregates about 1300 acres. **Production History:** Cumulative production to 1918 was 1,597,690,000 barrels (from 2600 acres). To July 1, 1929, the field had averaged 378,000 barrels per acre on the 3700 acres. Peak output was 52,000,000 barrels in 1901-02. **Present Activity:** Data not available. **Principal Lease Holder:** Azneft Oil Combine operates the fields.

Bibi-Eibat (Oil)

Location: In Baku district; 3 kilometers south and little west Baku, partly on land, partly in Bibi-Eibat Bay; on Apsheron Peninsula, Caucasus. **Discovery Data:** Was producing as early as 1892. **Geology:** Anticlinal dome, plugging north, northwest, with two subsidiary, parallel domes at its crest. Much minor faulting, usually parallel to major axis. **Producing Formations:** First oil pay at 280 feet. Also see "Baku District: General Data." Even formations above the Kirmaku (lowermost "Oil Measures" of Pliocene) are barely tapped; the Kirmaku are undrilled, and should be highly prolific. Bibi-Eibat Bay extension has only about half of the "Oil Measures" above the Kirmaku under development so far. Average depth of new oil wells in 1928 was around 2050 feet; some deeper drilling since. In 1934 was discovered 300 meters of oil saturated strata below the sixteenth stratum. Previously the sixteenth and seventeenth strata were believed the bottom of productive layers, with marine deposits below. Those layers thus appear to be only the center of the productive depth, with underlying oil zones equal to those above, if not thicker. **Extent of Development:** See above: "Producing Formations." **Deepest Hole:** Deepest pay horizon, the 16th zone, was opened in 1929, giving wells flowing 14,000 barrels daily from 3500 feet. **Productive Area:** Bibi-Eibat field proper covers about 615 acres; the recently opened Bibi-Eibat Bay extension about 300 acres. Undrilled acreage held in reserve and considered proved includes about 250 acres. **Production History:** Bibi-Eibat production in fiscal year 1928-1929 was 21.4 percent of Baku total. In 1892 field produced over 4,000,000 barrels oil. In 1929-30 fiscal year it produced almost 1,000,000 barrels. Has been one of most productive areas in Baku district. Up to July 1, 1929, field proper had averaged 580,000 barrels per acre on its 615 acres; while bay extension had averaged 56,000 barrels an acre on its 300 acres. Average production on an area of 400 acres at Bibi-Eibat has been over 800,000 barrels per acre, and several tracts have pro-

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RUSSIA—Baku District—*Continued*

duced as much as 2,500,000 barrels per acre. Deeper sands, yet undeveloped, may eventually double or treble present recovery totals. **Principal Lease Holder:** Azneft Oil Combine operates the field.

Binagadi (Oil)

Location: In Baku district; 10 kilometers north Baku, on Apsheron Peninsula; several miles west of Balakhany field. **Discovery Data:** One of the older and more important areas of Baku district. Originally had hand-dug wells, but by 1924 had considerable production from modern wells, which flowed initially up to 12,000 barrels daily. First large production was in 1901, from a 10,000-barrel flowing well. **Geology:** A much-faulted anticline, with denuded crest. **Producing Formations:** See "Baku District, General Data." Average depth of new oil wells was around 1600 feet in 1928; deeper drilling since. **Productive Area:** Estimated at about 2400 acres in January, 1935. **Production History:** In 1913, output was 1,750,000 barrels; later rose above 4,000,000 barrels a year. Heavy oil. Cumulative production to 1918 was 22,620,000 barrels. **Present Activity:** Data not available. **Principal Lease Holder:** Azneft Oil Combine operates the field.

Chail-Dag (Oil)

Location: In Baku district. **Extent of Development:** In early development (1929) wells were producing initially about 150 barrels daily. Deeper drilling offered promising possibilities.

Holy Island (Oil)

Location: In Baku district; on island just off northeast coast of Apsheron Peninsula, Caucasus; 40 kilometers east and some north of Baku. **Discovery Data:** Indications included gas and oil seeps, salt and sulphur waters, and mud volcanoes. First production about 1904. **Geology:** Anticlinal fold. An elongated asymmetrical dome, with major axis running northwest; much faulted. **Producing Formations:** Data not available. **Productive Area:** Estimated at about 700 acres. **Production History:** Had produced around 6,000,000 barrels sporadically from 1904-1924. Was producing about 800,000 barrels a year around 1920. Cumulative production to 1918 was 5,562,000 barrels. **Principal Lease Holder:** Azneft Oil Combine operates the field.

Kala (Oil)

Location. In Baku district; eastern part of Apsheron Peninsula, Caucasus; 25 kilometers east and little north of Baku. Midway between Surakhany and Holy Island fields. **Discovery Data:** First production about 1932. Structure was worked out by geological explorations, including shallow drilling. Favorable structural conditions were indicated in surface geology; numerous oil and gas seeps present. **Geology:** Anticlinal fold. Subsurface proved much faulted and broken up, a condition not favorable to commercial production if oil, crest or fold is stratigraphically about 700 feet deeper than Surakhany; and 1500-foot wells on crest of structure have logged formations and oil shows corresponding with those at Surakhany. **Producing Formations:** Oil is from so-called "productive layer," 1500 meters thick. **Extent of Development:** Drilling since about 1924; other data not available. **Productive Area:** It is estimated about 2400 acres have structural conditions favorable to oil accumulation, although at a relatively great depth, perhaps 5000 feet. **Production History:** Production of 1,100,000 metric tons in 1932-1933. Field was averaging 11,000 tons daily in late 1934. **Principal Lease Holder:** Azneft Oil Combine Operates.

Karachukhur Area (Oil)

Location: In Baku district; 8 kilometers east of Baku; on Apsheron Peninsula, Caucasus. Is an extension of the Surakhany field, and may be considered part of the old field. **Discovery Data:** Structure was revealed by geological exploration. In 1929 its first well was producing 4000 barrels daily. **Geology:** Anticlinal fold. **Producing Formations:** See "Baku District: General Data." First well (see discovery data, above) produced from middle "oil measures" of Pliocene, with the richer portions of the "measures" yet untested. **Extent of Development:** Drilling and production started, prior to 1934, according to the Soviets. **Productive Area:** About 2000 acres. **Production History:** Data not available. **Present Activity:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Kerges (Oil)

Location: In Baku district; 20 kilometers southwest Baku; just southwest Puta field; on Apsheron Peninsula. **Discovery Data:** Structure revealed through geological exploration. **Geology:** Anticlinal fold. **Producing Formations:** Data not available. **Extent of Development:** Drilling and production started prior to 1934, according to the Soviets. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine operates.

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RUSSIA—Baku District—*Continued*

Khan-Kishlak Area (Oil)

Location: In Baku district; about 30 miles south of Saliani, which see. **Discovery Data:** First production obtained in 1926 from Azneft Oil Combine's No. 1, which originally flowed around 600 barrels daily from 672 feet, after having encountered two other oil-bearing zones at shallower levels. **Geology:** Data not available; see Saliani. **Extent of Development:** In 1929, early development was resulting in completion of wells producing around 150 barrels daily initially. Deeper drilling offered promise. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Khordalan (or Khurdalan) (Oil)

Location: In Baku district; on Apsheron Peninsula, southwest of the Binagadi field. **Discovery Data:** Area for many years had hand-dug wells. Numerous wells were drilled by an English company prior to 1925. Output from hand-dug wells in 1914 indicated below under "Production History." **Geology:** Faulted anticline. **Producing Formations:** Data not available. **Productive Area:** Estimated proven area about 2500 acres. **Production History:** In 1914 Khordalan and Puta fields, Baku district, together produced about 1,700,000 barrels from hand-dug wells, it was estimated. The field has yielded heavy oil. To 1917, cumulative output for Khordalan, Puta, and Berekei was 9,082,000 barrels. **Principal Lease Holder:** Azneft Oil Combine.

Lok-Batan (Oil)

Location: In Baku district; 11 kilometers southwest Baku; on Apsheron Peninsula. **Discovery Data:** Discovered in 1932. Structure had been outlined and detailed by geological explorations. Mud volcanoes first attracted attention. **Geology:** Anticlinal fold. **Producing Formations:** Oil is from so-called "productive layer," 1500 meters thick. The sand saturation in this field is said to be the greatest ever known in the world. Wells have had exceptionally high initial flow. **Extent of Development:** Five prolific wells completed in 1932-1933. **Productive Area:** Large area indicated. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Naftalan (Oil)

Location: In Baku district. **Discovery Data:** Unconfirmed reports place discovery time prior to 1924. **Producing Formations:** Data not available. **Extent of Development:** Drilling and production started prior to 1934, Soviets reported. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine operates.

Nefte-Chala (Oil)

Location: In Baku district; about 150 kilometers south and little west of Baku. **Discovery Data:** Said to have been discovered prior to 1925; but this statement has not been verified. **Producing Formations:** Data not available. **Extent of Development:** Drilling and production started prior to 1934, Soviets reported. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Puta (Oil)

Location: In Baku district; 15 kilometers southwest Baku; on Apsheron Peninsula. Sometimes classified as part of Shubani-Puta fields. **Discovery Data:** Structure revealed in geological exploration. First commercial production in 1926. Early wells flowed around 1500 barrels 26 Beaume gravity oil daily from about 1100 feet. A report in 1921 mentioned production prior to that time from hand-dug wells. Production from the hand-dug wells in 1914 indicated below under "Production History." **Geology:** Faulted anticlinal fold, highly broken up; expected to contribute only small pools of oil. **Producing Formations:** Data not available. **Extent of Development:** Drilling and production as early as 1929. But the area has had only limited development. Wells range up to 700 barrels initial daily production. Deeper drilling offered promising possibilities. **Production History:** For 1914 Puta and Khordalan fields together were estimated to have produced 1,700,000 barrels of oil from hand-dug wells. The Puta field oil is heavy. To 1917 combined output at Puta, Khordalan, and Berekei was 9,082,000 barrels. **Principal Lease Holder:** Azneft Oil Combine.

Saliani (Oil)

Location: In Baku district; 70 miles southeast of Baku. **Discovery Data:** Oil seepages over a wide area. A 2500-foot wildcat drilled in 1916 was unproductive. First production in 1926. **Producing Formations:** Data not available. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Shubani (Oil)

Location: In Baku district; 5 kilometers west of Baku; on Apsheron Peninsula, Caucasus. Sometimes classified as part of Shubani-Puta district. **Production Data:** As early as 1926, several oil wells had been completed, producing around 200 barrels high gravity oil daily each; the crude having over 40 percent gasoline content. **Geology:** Data not available. **Producing Formations:** Early production at shallow depths, but deeper pay horizons were expected. **Productive Area:** Field has proved of only minor importance. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine.

Sulu-Tepe (Oil)

Location: In Baku district; on Apsheron Peninsula. **Discovery Data:** Structure revealed in geological exploration. No production until after 1926. **Geology:** Anticlinal fold. **Producing Formations:** Data not available. **Extent of Development:** Drilling and production as early as 1929, with wells yielding up to 50 barrels a day initially. Deeper drilling offered promising possibilities. **Production History:** Data not available. **Principal Lease Holder:** Azneft Oil Combine operates.

Surakhany (Oil)

Location: In Baku district; 10 kilometers east and little north of Baku; on Apsheron Peninsula, Caucasus. Karachukhur field is an extension of Surakhany. **Discovery Data:** Petroleum known here many centuries; gas wells were long used in temples of fire worshippers. Most of commercial production since 1909, deeper sands having been found in 1908. The fire worshippers and Hindus of Burma and India made pilgrimages to natural gas issues for 2500 years. As late as 1890 Hindu priests conducted ceremonies in a temple at Surak. **Geology:** Anticlinal fold. A broad flat anticline, striking north and south. **Producing Formations:** See "Baku District: General Data." Surakhany has been producing only from upper "oil measures." It is expected to be highly productive also from the lower "oil measures," including the Kirmaku zones. Oil wells in 1928 were averaging about 2750 feet on completion; tendency toward deeper drilling since then. **Productive Area:** 1370 acres. Undrilled acreage held in reserve and considered proved amounts to about 630 acres. **Production History:** Has been one of best producing areas of Baku district. To July 1, 1929, had averaged 248,000 barrels per acre on its 1,370,000 acres. In fiscal year 1928-1929 it produced 38.4 percent of Baku total (67,000 barrels per day.) Cumulative production to 1918

RUSSIA—Baku District—*Continued*

was 54,920,000 barrels. **Present Activity:** The 1932-1933 program called for 50 percent of total Baku production to come from this field. **Principal Lease Holder:** Azneft Oil Combine.

Gurgyani (Prospects)

Location: In Baku district; on Apsheron Peninsula, Caucasus. **Discovery Data:** Structure revealed through geological work prior to 1934. **Geology:** Anticlinal fold indicated. **Producing Formations:** Data not available. **Extent of Development:** Had not been drilled prior to 1934. **Principal Lease Holder:** Azneft Oil Combine.

Mardakyani (Prospect)

Location: In Baku district; on Apsheron Peninsula, Caucasus. **Discovery Data:** Gas seeps present. Structure revealed through geological exploration. Electrometric charts made in 1934. **Geology:** Favorable structure indicated; an anticlinal fold. Axis of fold extends into the sea. **Extent of Development:** Development was expected to begin early in 1934. **Principal Lease Holder:** Azneft Oil Combine.

Pirsagat (Prospect)

Location: In Baku district; about 75 kilometers southwest of Baku. **Discovery Data:** Electrical and magnetic methods used in detailing the structure within past several years. **Geology:** Favorable structure indicated. **Extent of Development:** In early 1934 area was being prepared for development. **Principal Lease Holder:** Azneft Oil Combine.

Turkyani (Tiurkiansk) (Prospect)

Location: In Baku district; on Apsheron Peninsula. **Discovery Data:** Structure found through geological work prior to 1934. Electrometric charting in 1934. **Geology:** Anticlinal fold. **Extent of Development:** Not developed prior to 1934. **Principal Lease Holder:** Azneft Oil Combine.

Zikh (or Zyhsk) (Prospect)

Location: In Baku district; on Apsheron Peninsula. Near the coast, due south of Surakhany field. **Discovery Data:** Structure revealed through geological explorations. Extinct mud volcano present. In material ejected by volcano, there are present oil-stained fragments of all stages of the oil measures, indicating oil horizons below. Electrometric charts of this area made in 1934. **Geology:** Favorable structure indicated: a faulted anticlinal fold. Along denuded crest of the fold, beds of Apsheron age are exposed. **Extent of Development:** Development was expected to start early in 1934. **Productive Area:** About 275 acres considered promising. **Production History:** None to date. **Principal Lease Holder:** Azneft Oil Combine.

Baku District—Miscellaneous (Prospects)

Location: Baku district. **Discovery Data:** It was reported by the Soviets in 1933 that the geological structure of the Kabristan plains had been studied and that favorable conditions had been found at Kyaniz-Dag, Gengi, Cheilakhtarma, Solokhaya, Kari-Dag, and places on the Alat ridge—Pirsagat (now productive), Bandovan and Khidirli. Also a general study was made of the lowlands of the Kura river, and promising structures were discovered in the Agikabul area. **Principal Lease Holder:** Azneft Oil Combine.

Mirzaan and Shirak Steppes (Oil)

Location: About 250 kilometers west and little north of Baku, and 400 kilometers west and a little south of Batum, in Georgia. **Discovery Data:** Structure revealed through geological exploration. **Geology:** See "Discovery Data." **Producing Formations:** Counterpart of productive horizon of Apsheron Peninsula (Baku district) has been found—the so-called Shirak Continental formation—with normal thickness of 2500 meters, of which 1600 meters had been explored to end of 1933, containing 23 oil-bearing horizons with aggregate thickness of 270 meters. **Extent of Development.** Two locations, Mirsanni and Shirocki had been classed as regular producing areas in 1933, as some of their wells had flush production and much gas. **Principal Lease Holder:** Azneft Oil Combine. **Remarks:** Other areas of Georgia were being wildcatted in 1934.

Georgia (Prospects)

Location: West of the Black Sea. **Discovery Data:** At close of 1933 the Soviets reported that favorable formations had been found in the regions of Mlashis-Khevi, Kila-Kupra, Tarabani, Tulki-Topa, Chatma, Pkhoveli, Gurgaani, Navtlug, and Ildokana. Also structures were studied in Guria at Ompareti, Guliani, Sakupra, Notanebi, and Norio. **Principal Lease Holder:** Azneft Oil Combine.

Ildohani (Oil)

Location: In Tionct Valley, near Tiflis. **Discovery Data:** Not available. **Geology:** Data not available. **Producing Formations:** Data not available. **Production History:** A report in 1920 mentioned wells flowing light oil.

Berekei (Oil)

Location: On west coast of Caspian Sea, about midway between Baku and Grozny districts. On the Caucasus railroad, near port of Derbent. **Discovery Data:** Oil seepages present. First production in 1901. Field was being developed in 1905-1910. But then hot sulphur water practically stopped operations. **Geology:** A much-faulted anticline on east flank of Caucasian mountains. **Producing Formations:** Wells flowed up to 1000 barrels daily from numerous sands ranging down to 1500 feet, in Lower Miocene and Upper Oligocene. Sand conditions similar to those at Maikop. **Extent of Development:** Data not available. **Deepest Hole:** To 1927 no testing of sands below Upper Oligocene. It was believed Middle and Lower Oligocene and the Eocene formations should prove prolific in oil. **Productive Area:** Data not available. **Production History:** Production from 1905 to 1910. Oil was 26 gravity, and yielded on straight run 7 percent gasoline, 34 percent kerosene, 22 percent lubricating oils. In 1921 the field produced about 500,000 barrels from wells flowing 2000 to 5000 barrels daily initially. Water encroachment then interfered and stopped operations. To 1917 combined cumulative production of Berekei, Puta, and Khurdalan was 9,082,000 barrels. **Present Activity:** Field not producing in 1926; some years ago it was reported resumption of development was contemplated, with rotary tools. Cable tools would not succeed in drilling prolific salt water sands found below 1500 feet. **Principal Lease Holder:** Azneft Oil Combine.

North Caucasus District

Grozny Area (Oil)

Location: In North Caucasus district; 150 kilometers east of Caspian Sea, around town of Grozny; includes three producing areas, within a circle about 75 kilometers in diameter: one just south of Grozny, one just north, and one about 60

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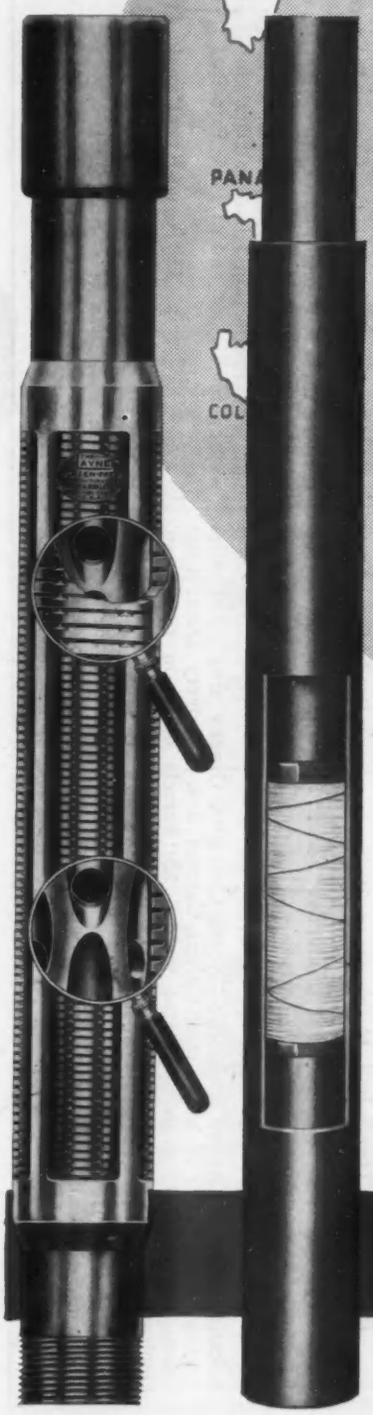

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RUSSIA—North Caucasus District—*Continued*

kilometers northwest. Main Grozny fields about 8 miles from town of Grozny. **Discovery Data:** Geophysics employed to advantage since 1924, but there has been production since 1899. First important production in 1903, when a large flowing well was drilled by an Englishman. **Geology:** Sharply folded anticline, probably faulted. An asymmetrical anticline. **Producing Formations:** Not like the loose sands of Baku. In 1928 it was reported Grozny had seven definite producing sands. The oil sands are very lenticular, irregular in porosity, degree of consolidation, and coarseness. **Extent of Development:** In fiscal year 1929-1930 drilling aggregated 406,921 feet. **Deepest Hole:** Data not available. **Productive Area:** See fields comprising this area. **Production History:** Cumulative production of Gozny (old and new fields) to 1917 was 139,858,000 barrels (from about 8000 acres). Produced 47,444,630 barrels oil in fiscal year 1929-1930. Field has had highly prolific wells. It was reported in 1924, for instance, that one well in 12 months had produced 2,320,000 barrels, and was still flowing 4500 barrels daily. Initially, it flowed 11,000 barrels daily. Oil is paraffin base. **Present Activity:** Data not available. Remaining recoverable oil in Grozny's two fields was estimated in 1928 as being around 500,000,000 barrels. **Principal Lease Holder:** Grozneft Oil Combine operates.

New Grozny Field (Bellik) (Oil)

Location: In North Caucasus district; see "Grozny Area"; east of the old Grozny field. **Discovery Data:** First production in 1912, when large, flowing wells were completed. **Geology:** A nearly symmetrical fold. In 1934 investigation showed presence of a thrust in western part of Novo (new) Grozny region. From underthrust part, a prolific flowing well was completed in 1934; also a well was completed in the underthrust in Old (Stara) Grozny in 1934. **Producing Formations:** Miocene sands. In 1926 a 10,000-barrel per day flowing well was producing from 2100 feet. In 1927 there were eight separate oil horizons, at 1183 to 3615 (?) feet. A water drive field. **Production History:** See "Grozny Area." **Principal Lease Holder:** Grozneft Oil Combine.

Old Grozny (Oil)

Location: In North Caucasus district: see "Grozny Area." **Discovery Data:** First production about 1897. Other data not available. **Geology:** Elongated asymmetrical dome, 9 miles long, west-northwest, with faulting; see also geology of new Grozny field. **Producing Formations:** Miocene sands. **Productive Area:** About 8000 acres. **Production History:** Had averaged prior to 1921 around 150,000 barrels per acre on the 8000 productive acres. **Principal Lease Holder:** Grozneft Oil Combine.

Voznesensky (Oil)

Location: In the Grozny area: See "North Caucasus, Grozny area"; 350 miles northwest of Baku; 75 miles inland from Caspian Sea. **Discovery Data:** First production in 1924, when a wildcat yielded 120 barrels daily on the pump. **Geology:** Data not available. **Producing Formations:** See "North Caucasus district: Grozny area." Sands at 2450-2800 feet. Oil is 18-20 A. P. I. gravity; asphalt base. **Extent of Development:** At beginning of 1928 the field had about a dozen producing oil wells, and more drilling was under way. **Production History:** Data not available: **Principal Lease Holder:** Grozneft Oil Combine.

Achi-Sunsk Area (Oil)

Location: In the eastern portion of North Caucasus district. **Discovery Data:** Oil indications found prior to 1934. **Geology:** Fold indicated by geological work. **Producing Formations:** No data. **Extent of Development:** Development was scheduled to start in 1934. **Principal Lease Holder:** Grozneft Oil Combine.

North Benoisk Fold (Benoi) (Oil)

Location: In the eastern section of North Caucasus district; near village of Sterch-Kertich, about 50 miles southeast of Grozny. **Discovery Data:** First production October 26, 1930, when a well, that had been started in 1926, was completed, flowing 3000 barrels clean oil daily from 3630 feet. Oil was 40 Beaume gravity, contained 30 percent gasoline, 45 percent kerosene, 16 percent paraffin. **Geology:** Folded structure, 12 miles long and two miles wide, indicated by geological investigation. **Producing Formations:** Maikop formation, stratigraphically below pay formations of Grozny. **Extent of Development:** Limited development up to 1934. Area is in an inaccessible, mountainous, wooded country. On completion of discovery well, seven new tests were ordered started. In 1934, at the eastern end of Benoisk fold, a second flowing well was completed, yielding 400 tons light oil daily. **Production History:** Data not available. **Principal Lease Holder:** Grozneft Oil Combine.

Eldarova (Prospect)

Location: In North Caucasus district; in anticlinal uplift of the Tersk ridge. **Discovery Data:** Gas found in well drilled in 1934. **Geology:** No data. **Producing Formations:** Undetermined. **Production History:** None. **Principal Lease Holder:** Grozneft Oil Combine.

Isberbash Area (Prospect)

Location: In the eastern part of North Caucasus district. **Discovery Data:** Indications of oil observed before 1934. **Geology:** Folded structure indicated in geological exploration. **Producing Formations:** Undetermined. **Extent of Development:** Development was scheduled to begin in 1934. **Production History:** None. **Principal Lease Holder:** Grozneft Oil Combine.

Molgabek Area (Oil)

Location: In the eastern portion of North Caucasus district. **Discovery Data:** Discovered and put in production in 1933 by Grozneft Oil Combine. **Geology:** Folded structure indicated by geology. The structure of the fold has been found complicated. Western and eastern parts appear separated by a thrust, retaining oil bearing sands in sealed condition. **Producing Formations:** Four separate oil-bearing formations found, in three wells. **Extent of Development:** By opening of 1934, three oil wells had been completed, with daily production of 600 metric tons. By end of 1934 there were 50 derricks, a village of 4000 population, a narrow-gauge railroad. **Deepest Hole:** Data not available. **Productive Area:** Undetermined. **Production History:** Data not available. **Present Activity:** 50 derricks waiting for rigs at end of 1934. **Principal Lease Holder:** Grozneft Oil Combine.

Novo-Krestiansk (Prospects)

Location: In North Caucasus district; on the Zaterechnaia plain, at village of above name. **Discovery Data:** In 1934 high ohmic resistance indicated oil saturation in what was identified tentatively as the Spaniodontol deposits. **Geology:** Data not available. **Producing Formations:** Undetermined. **Principal Lease Holder:** Grozneft Oil Combine.

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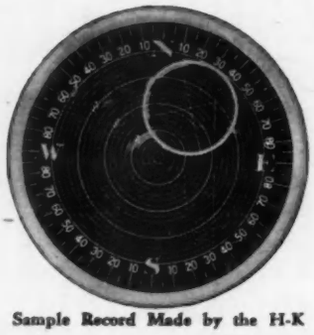

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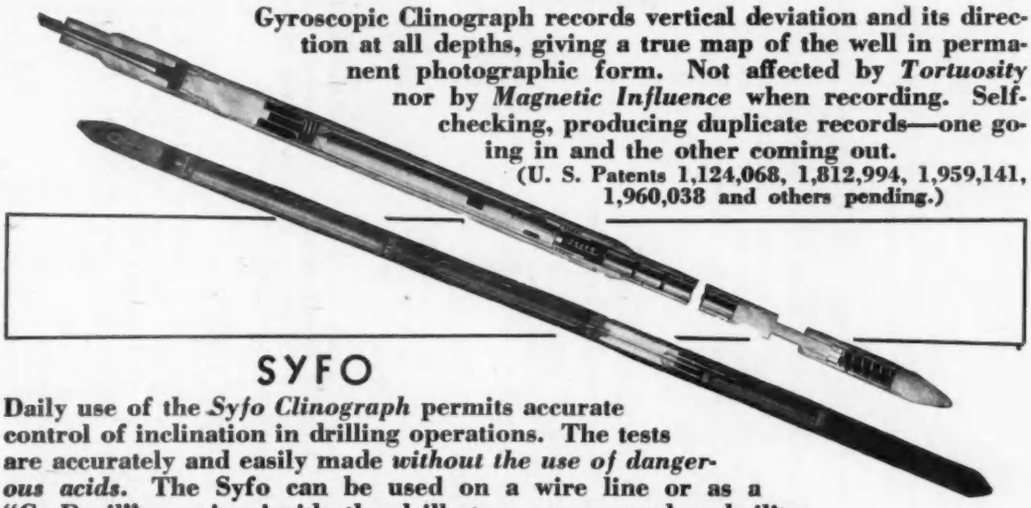

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RUSSIA—North Caucasus District—*Continued*

North Caucasus—Miscellaneous (Prospects)

Location: In eastern section of North Caucasus district. **Discovery Data:** Geological work indicated structures, prior to 1934, in the Mineralovodsk region, Stavropolsk region, Kalmik steppes, Zaterek Valley; also folds were indicated at Datikhask, Kabardin, Sungen, southern and northern Voznesenki, Alkhazova, Eldarova, Goryachevodsk, Bragunsk, Gudermes, Nyatlinsk, Mutzidakal, Tushikli, Makhachkala, Kayakent, Dag-Ogni, Khotch-Menzil. **Geology:** Structures of the region are of purely anticlinal type; some expected to develop into very important oil fields. **Principal Lease Holder:** Grozneft Oil Combine.

Kabistan Area (Prospect)

Location: East of the Black Sea, about 200 kilometers north and little east of Batum; 40 kilometers south of Maikop. **Discovery Data:** No production yet. **Geology:** Data not available. **Producing Formations:** Undetermined. **Extent of Development:** Shown on Soviet map in 1934.

West Caucasus District

West Caucasus District—General Data (Oil)

Location: In the Maikop area; west of Maikop and northwest of Tuapse, to north of Black Sea. Includes several separate areas, west of Khadijensk, near Kalujski and Krymskaia. **Principal Lease Holder:** Maineft Oil Combine.

Adagum Anticline (Oil)

Location: West Caucasus district; in western part of North Caucasus. In Kuban Province, at base of Taman Peninsula, near Varenikov, 20 miles northwest of railroad station at Krimsky. **Discovery Data:** Well spudded in July, 1930, and in September began flowing by heads from 1250 feet. A dozen wells were scheduled to start in 1931. **Geology:** Folded structure indicated by geology. **Producing Formations:** Data not available. **Extent of Development:** First commercial production established in 1933, according to Soviet reports. **Production History:** Data Not available. **Principal Lease Holder:** Maineft Oil Combine.

Kalujski (Oil)

Location: In West Caucasus district; see "West Caucasus District: General Data." **Discovery Data:** In 1927 a well flowed 900 barrels of 29 Beaume gravity oil in 16 hours from 610 feet, but the production was short-lived. **Geology:** Data not available. **Producing Formations:** See discovery data. **Principal Lease Holder:** Maineft Oil Trust.

Kessler Anticline (Oil)

Location: In West Caucasus district. **Discovery Data:** First production in 1933. **Geology:** Folded structure indicated by geology. **Producing Formations:** Data not available. **Extent of Development:** Limited development; first oil production established about 1933. **Production History:** Data not available. **Principal Lease Holder:** Maineft Oil Combine.

Khadigensk (or Hadyjansk (Oil)

Location: In the Maikop region of the West Caucasus district; western part of North Caucasus; northeast of Black Sea shore; about 100 kilometers northeast Tuapse. **Discovery Data:** First production about 1933. **Geology:** No data. **Producing Formations:** Beneath present producing horizon a bed analagous to that of the Apsheron Peninsula may possibly be found. **Extent of Development:** Oil production established in 1933, according to Soviet reports. **Principal Lease Holder:** Maineft Oil Combine.

Kauban Area (Oil)

Location: See "West Caucasus District: General Data." **Discovery Data:** Not available. **Geology:** River sand deposit type fields, of relatively minor importance. **Producing Formations:** Data not available. **Production History:** The Kauban area produced 590,000 barrels in the 1926-1927 fiscal year; 519,000 barrels the preceding year; 400,000 barrels in 1924-1925.**Principal Lease Holder:** Grozneft Oil Combine was operating in 1926.

Kudoko Anticline (Oil)

Location: In the West Caucasus district; western part of North Caucasus, 87 miles west of Maikop. **Discovery Data:** The area furnished Russia's first "gusher," a well completed at 70 feet, in 1866. Later there were wells at depths of 700 to 1000 feet, with conditions similar to those at Maikop. **Geology:** Folded structure indicated by geology. **Producing Formations:** Data not available. **Extent of Development:** Limited; first commercial development and production established about 1933. **Principal Lease Holder:** Maineft Oil Combine.

Maikop (Oil)

Location: In the West Caucasus district; near Maikop town, north of Black Sea. **Discovery Data:** First well, 281 feet deep, flowed 375,000 barrels. **Geology:** No data. **Producing Formations:** Upper Oligocene sands. **Production History:** Maikop area's cumulative production to 1917 was 4,750,000 barrels. **Principal Lease Holder:** Maineft Oil Combine.

River Il. (Oil)

Location: In Maikop section of the West Caucasus district. **Discovery Data:** Small production started about 1880; heavy oil. **Geology:** No data. **Producing Formations:** Information not available.

Shirvansky (Oil)

Location: A small field, near Maikop, and in the West Caucasus district. **Discovery Data:** First production was from a flowing well completed in 1909. **Geology:** No data. **Producing Formations:** Information not available. **Production History:** In 1921 it was reported the field had produced over 4,000,000 barrels, the 1920 output having been 250,000 barrels. **Principal Lease Holder:** Maineft Oil Combine.

Varenikov Anticline (Oil)

Location: West Caucasus district. **Discovery Data:** First production in 1933. **Geology:** Three separate folds indicated by geological exploration. **Producing Formations:** Data not available. **Extent of Development:** Production established in 1933, according to Soviet reports. **Principal Lease Holder:** Maineft Oil Combine operates.

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RUSSIA—West Caucasus District—*Continued*

Miscellaneous (Prospects)

Location: West Caucasus district; in the western part of North Caucasus. **Discovery Data:** Found and outlined through geological work. In 1934 Soviet reports indicated there had been found three folds in the Anop area, and structures at Medovka and Kudano, also structures were studied in the regions of Kholm, Ilsk, Kutais, Khadigin, and Asphalt Mountains.

Kerch Peninsula (Oil) Non-Commercial

Location: On Kerch Peninsula of Crimea, between Black Sea and Sea of Azof; about 300 kilometers northwest of Tuapse. **Discovery Data:** On the peninsula, 27 anticlines had been studied and charted by 1934, the majority showing signs of oil. Deep wildcatting and geological work were in progress as early as 1926. Many oil and gas seepages present, and some active mud volcanoes. Production from hand-dug wells described by Greeks of ancient history. A well on Kerch Peninsula near Tchongelek was completed in 1912, flowing 3500 barrels daily and declining to 150 barrels a day by 1914; it remained best well of peninsula through 1926. **Producing Formations:** Oil shows occur in Miocene and Oligocene beds. **Extent of Development:** Limited development. There was some experimental production in 1925 that was discontinued that year. **Principal Lease Holder:** Grozneft Oil Combine was developing area in 1926.

Taman Peninsula (Prospects)

Location: Near Kertch Peninsula, which see. **Discovery Data:** Prior to 1934, Soviets had examined nine folds. Many oil and gas seepages present, and some active mud volcanoes. Greek travelers in ancient history described oil production from hand-dug wells. Shallow wells have shown 43 gravity oil, and prior to 1927 a well near village of Old Titovo had small flow of 64 gravity oil from 420 feet. It was believed 500-foot wells could produce around 30 barrels daily. **Principal Lease Holder:** Grozneft Oil Combine.

Emba District

General Data (Oil)

Location: About 100 kilometers northeast of northeast shore of Caspian Sea, and south of Emba River; also a separate oil producing area 160 kilometers west, to the west of Emba River, and within 20 kilometers of the Caspian Sea. **Geology:** Salt masses. **Producing Formations:** Oil sands (sand rock) range from 1300 to 1700 feet. Emba crude is rich in lubricants and kerosene. **Extent of Development:** In fiscal year 1929-1930, drilling aggregated 96,850 feet. Development has been limited, due to great distance from points of consumption. **Production History:** Cumulative output of Emba-Ural, North Caspian region, including Dossor, etc., was 8,575,000 barrels to 1917. In fiscal year 1929-1930, Emba district produced 2,500,000 barrels oil. **Principal Lease Holder:** Embaneft Oil Trust.

Baichunas (Oil)

Location: In Emba district, which see. See above. **Discovery Data:** Oil discovered and operations started in 1933, according to Soviet reports. **Geology:** No data. **Extent of Development:** Limited; see Discovery Data above. **Principal Lease Holder:** Embaneft Oil Trust.

Dossor (Oil)

Location: See "Emba District: General Data." **Discovery Data:** First production about 1910; large flowing wells. **Geology:** Data not available. **Producing Formations:** Several sands productive. In 1928 one of better completions (well No. 202) was a well flowing 1000 barrels daily from 720 feet. **Production History:** In fiscal year 1926-1927 Emba district produced 1,825,000 barrels; of that amount Dossor yielded 85.7 percent, from 100 wells; Makat field produced the rest. **Principal Lease Holder:** Embaneft Oil Trust.

Jakshilai Area (Oil)

Location: See Emba District: General Data. **Discovery Data:** Oil discovered and operations started in 1933, according to Soviet reports. **Geology:** See Emba District: General Data. **Extent of Development:** Limited; see Discovery Data, above. **Principal Lease Holder:** Embaneft Oil Trust.

Makat Field (Oil)

Location: See "Emba District: General Data." Makat is 15 miles north of Dossor field and in Emba district. **Discovery Data:** In 1926-1927, new productive areas were being discovered, in addition to established areas. Field was not operated in 1917-1925, although it had previously produced. **Production History:** See "Production History" of Dossor. **Principal Lease Holder:** Embaneft Oil Trust.

Kos-Chagil Area (Oil)

Location: See Emba District: General Data. Fold located in Emba district. **Discovery Data:** Put into production in 1933, through a well that flowed around 400 metric tons daily. **Extent of Development:** First production in 1933. No drilling since completion of discovery well, pending completion of railroad. **Productive Area:** Undetermined. **Production History:** Data not available. **Principal Lease Holder:** Embaneft Oil Trust.

Shubar-Kuduk (Oil)

Location: In Emba district; see Emba District: General Data. **Discovery Data:** Oil was discovered and operations started in 1933, according to Soviet reports. **Extent of Development:** Limited; see Discovery Data, above. **Principal Lease Holder:** Embaneft Oil Trust.

South Iskin Area (Oil)

Location: In Emba district; see Emba District: General Data. **Discovery Data:** Put into production in 1933, with a well flowing around 400 metric tons daily. Late in 1934 the well was flowing 250 tons daily. **Geology:** No data, presumably a salt dome. **Producing Formations:** Zone of contact of sedimentary rocks with the salt formations. **Extent of Development:** First production in 1933. **Production History:** Crude Oil of this field is of exceptionally high quality. Other data not available. **Principal Lease Holder:** Embaneft Oil Trust.

Salt Domes (Prospects)

Location: See Emba District: General Data. **Discovery Data:** It was reported by the Soviets in 1933 that about 350 salt domes had been discovered in the

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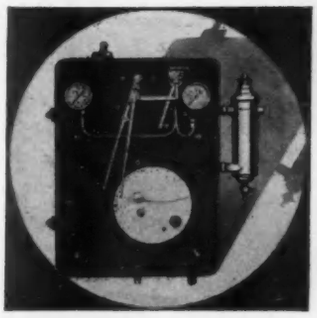

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RUSSIA—Emba District—*Continued*

region of Emba. In 1934, geology and geophysics, they reported, revealed several score additional salt domes, and such work was still in progress. The whole region between the Ural and Volga rivers is proving studded with salt domes, recent Russian reports indicate, while salt formations also are present in the Ukraine between the steppes of Poltava and Romna. Detailed study of those places is scheduled in 1935. **Extent of Development:** At beginning 1935 detailing of some of the domes had been started by reflection seismograph and detailed gravimetric work. **Principal Lease Holder:** Embaneft Oil Trust.

Sterlitamak (Ishimbaevo) (Oil)

Location: Central western part of European Russia; about midway between Perm and Emba districts; about 400 kilometers east of Volga River; 350 kilometers northwest of Orsk; in the Ural Mountains region. **Discovery Data:** Rich new oil deposits discovered here in 1932. **Geology:** Nature of the structure only partially determined, but in 1934 gravimetric work furnished better picture. **Producing Formations:** Limestones of the Artinsk and Carboniferous eras; extending down 200 meters, widely distributed; exceptional saturation. The Russians regard this field, because of its favorable formations, as one of the first order. **Extent of Development:** Several flowing wells had been completed by beginning of 1934, flowing around 400 metric tons daily each. The operating trust had completed by opening of 1935 the 160 kilometers of wide gauge railroad from Ishimbaevo to Ufa, following a year of construction work. **Productive Area:** Soviet report shows productive area of 900 hectares. **Production History:** Data not available. **Principal Lease Holder.** Vostokneft (The Eastern Oil Trust).

Ural Region

Chussovskie-Gorodki (Oil)

Location: On western slope of Ural Mountains; in the Ural region North European Russia, about 125 kilometers east of Perm (which is on Kama River) and near town of Chussovskie. **Discovery Data:** First production in 1930. **Geology:** No data. **Producing Formations:** Information not available. **Extent of Development:** Two separate producing areas, about 25 kilometers apart, are here, one being about 15 kilometers north of Chussovskie and the other south of that town. About 60 wells had been drilled by end of 1934. **Principal Lease Holder:** Uralneft.

Levshino (Oil)

Location: About 20 kilometers north of Perm and in Ural region; on western slope of Ural Mountains, North European Russia, north of Emba district. **Discovery Data:** Oil production established in 1933. **Geology:** No data. **Producing Formations:** Kungur and Carboniferous strata.

Paper Combine (Oil)

Location: In the Ural region, about 45 kilometers south of Perm (which is on Kama River); on western slope of Ural Moutains; on the territory of the Paper Combine. **Discovery Data:** First production in 1933. **Geology:** No data. **Producing Formations:** Kungar deposits.

Samarsk (Prospect)

Location: In the Ural region. **Discovery Data:** Four test wells by end of 1934 had disclosed a series of oil-bearing strata in Carboniferous formations. In two of the tests, attempts were being made to develop production from the oil strata found. **Geology:** No data. **Producing Formations:** See "Discovery Data." **Productive Area:** Preliminary information, involving oil shows in the four wildcats, indicates possibility of an enormous productive area. For the four wells are distributed over 80 kilometers of land.

Ukhta Area (Oil)

Location: In the Ural region; on western slope of Ural Moutains, north of Emba district. In Northern European Russia; about 150 miles north of Perm area, between Arctic Ocean and Ural Mountains. **Discovery Data:** Oil production established about 1933. Oil indications found over a large area. Seepages of oil occur from Devonian and Silurian formations. Wells drilled by government before 1917 had oil shows at 150, 400 and 600 feet, best yield being three barrels of 30 gravity oil daily. **Geology:** Data not available. **Producing Formations:** Producing formations are Devonian and Silurian, which are older than in fields near Sterlitamak. **Extent of Development:** Very limited due to severe climate. Snow on the ground except from June to September; average temperature for whole year is 30°F. Communication and transportation are consequently difficult. **Principal Lease Holder:** Embaneft Oil Trust.

Miscellaneous (Prospects)

Location: Northern European Russia; about 150 miles north of Perm district; on western slope of Ural Mountains. **Discovery Data:** Soviet reports in 1933 indicated that favorable structures had been found through geological exploration carried on at Samarski, Luki, Sok, Urezan, Cherche, Keirovki, Ozinbe and Jelti. **Geology:** No data. **Producing Formations:** None commercially productive. **Extent of Development:** Shown on Soviet map in 1934 as oil field. **Principal Lease Holder:** Embaneft.

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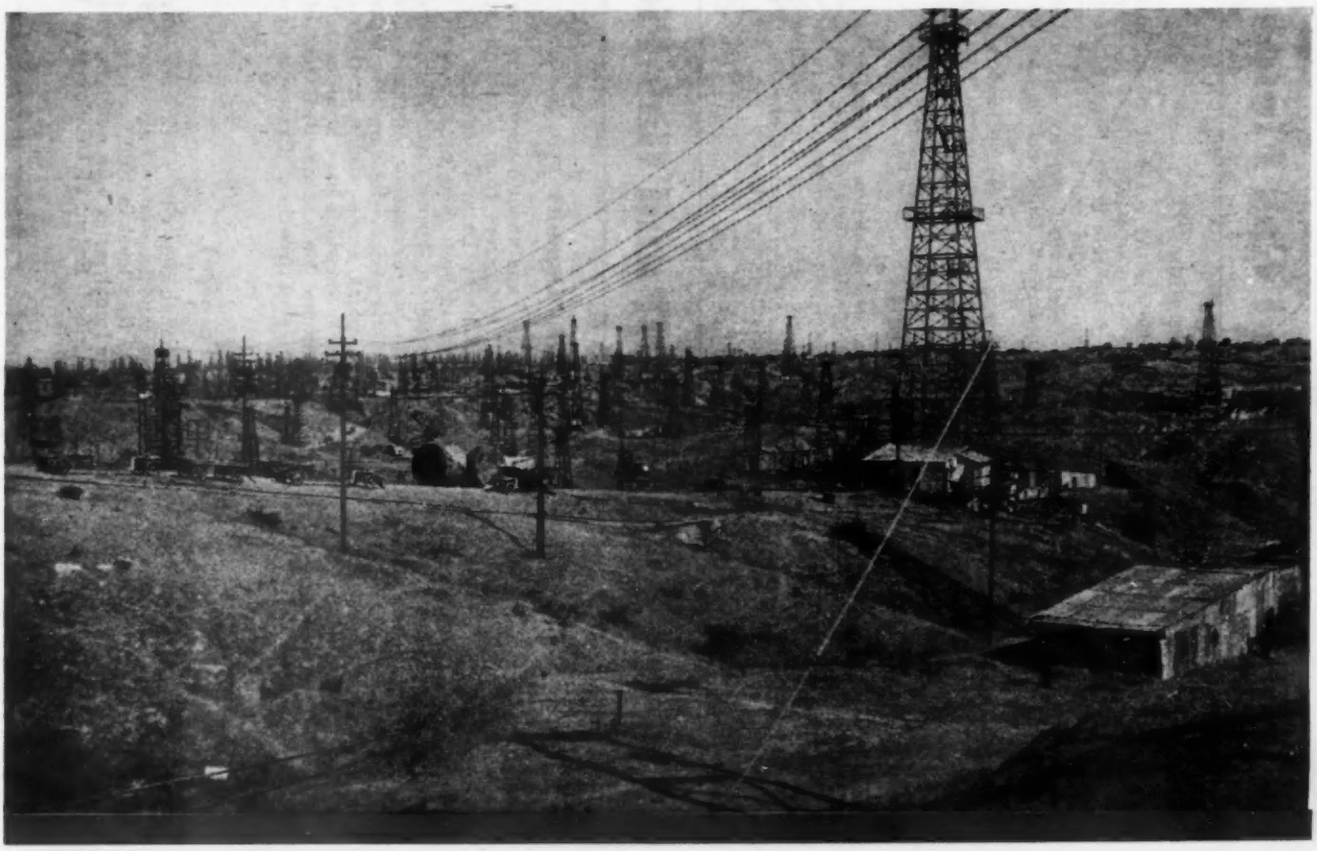


Oil and Gas Fields of Asia—Bahrein Island

General Information

The Bahrein Islands, located about 25 miles off the coast of the mainland of Arabia, are geographically a part of Arabia, but not a part of the Kingdom of Saudi Arabia. Islands of this group, of which Bahrein is the largest, are essentially independent, in government, but certain special rights have been granted to Great Britain through treaties. Bahrein Petroleum Company, Ltd., a wholly owned subsidiary of the Standard Oil Company of California has an oil concession covering the islands.

Having established oil production on Bahrein Island (see below), that company has been carrying on a systematic drilling and development campaign. It has constructed camps, laid pipe lines, and built marine loading facilities.

Bahrein (Oil)

Location: Bahrein Island, located in the southwest portion of the Persian Gulf, about 30 milès off east coast of Saudi Arabia; discovery well located about 12 miles south of Manama, capital of Bahrein Island, and approximately 340 miles southeast of Basra. **Discovery Data:** Surface geology caused first drilling; discovery well was Jebel Dukhan 1, of The Bahrein Petroleum Company, Limited, completed June, 1932; depth, 2008 feet; inital production, 500 barrels per day; gravity of oil, 33.8°, Baume. **Geology:** Type of structure is an elongated dome. Major axis strikes north 5° west; crest of dome broad and flat with dips increasing on the flanks. **Producing Formations:** Oil and gas come from a fractured limestone, with some calcareous sand and marl. Tentatively classified as Tertiary. Horizon is encountered at from 1850-2500 feet, and produces 30.6 to 34.6° Baume gravity, mixed base oil. **Extent of Development:** 8 producing oil wells, no gas wells, and 1 failure drilled from discovery through June 30, 1934. **Deepest Hole:** Jebel Dukhan 4, drilled by The Bahrein Petroleum Company, Limited, depth 2597 feet. Plugged 2584 feet. Date completed, March 30, 1934. Location, 4685 meters south and 2944 meters west of Jebel Dukhan No. 1. Formation, brown limestone. Initial production, 24 barrels per day. Now shut in. **Productive Area:** For oil and gas production—commercial— about 10,000 acres as of June 30, 1934. Oil and gas between 1850 and 2550 feet depth. Field is not defined. **Production History:** 31,463 barrels oil to end of 1933; 114,783 barrels oil during first 6 months of 1934; 1,705 barrels oil daily average yield as of June 30, 1934, when 8 wells were on production. 30.6 to 34.6° Baume gravity oil is produced. **Present Activity:** 1 rotary and 3 cable tool rigs running as of June 30, 1934. **Principal Lease Holders:** The Bahrein Petroleum Company, Limited, which organization furnished the above data.

Oil and Gas Fields of Asia—China

Chailainor (Bitumen Deposit)

Location: Lies just north of the Lake Dalainor and about 5 kilometers south of the Chalainor lignite mines. It is about 30 kilometers from Manchuli Station on the C. E. R. Heilungkiang Province. **Discovery Data:** Prospected only with excavated trenches; no exploratory drilling had been done up to August, 1934. **Geology:** Volcanic series composed of trachyte on top with underlying agglomerate, tuff, phyolite, andesite, etc., of probably Cretaceous age and Tertiary lignite beds lying directly upon it. Bituminous grains which on test proved to be near to grahamite occurs as fillings of pores or fissures in trachyte. Two layers of bitumen-bearing trachyte about one meter thick have been located with the upper one more rich. **Producing Formations:** Undetermined. **Extent of Development:** Has been prospected by a series of trenches. Extensive development has not yet been made.

Changhsing (Seepage)

Location: About 20 kilometers west of Changhsing city, Chekiang Province. **Discovery Data:** A flow of oil from a sandstone lens in coal measure was discovered under the Szemowtsun shaft at 246 foot level in 1920. Origin of oil is not known. **Geology:** Permian limestone and coal series with overlying Triassic limestone. **Producing Formations:** Undetermined. **Extent of Development:** Practically nothing has been done to develop the area.

Chingshiphsia (Prospect)

Location: Southeast of Tacheng district and about 320 kilometers northwest of Tihua, Sinkiang district. **Discovery Data:** Oil seepages. **Geology:** Data not available. **Producing Formations:** Undertermined. **Extent of Development:** None as of July, 1934.

Chungpu (Prospect)

Location: Near Tientou village, northwest of Chungpu district, North Shensi district. **Discovery Data:** Small seepage early known. Deep test in 1915 by Chinese Government to 3545 feet, finding trace of oil at 280, 1008, 1420, 1776 feet. Shows insignificant except at 1378, where it was relatively promising. **Geology:** Gentle anticline. **Producing Formations:** Oil occurs in upper part of Lower Jurassic coal measure, but has not been developed commercially.. **Extent of Development:** Only 1 test, according to data available in December, 1934. **Deepest Hole:** 3545 feet, dry hole, drilled in 1915 by Chinese government. **Productive Area:** Undetermined. **Production History:** No commercial production up to June 30, 1934. **Present Activity:** None as of July, 1934. **Principal Lease Holders:** Government.

Fushih (Yenan) (Seepage)

Location: About 12 seepages known on the northeast, south and northwest of Fushih (formerly called Yenan) district city, North Shensi district. **Discovery Data:** Seepages known long ago. One drill 3000 feet deep at Chiaokou, five kilometers northeast of Yenan made by the Chinese Government in 1915, finding traces of non-commercial oil at 1140, 1145 and 1266 feet. Oil contaminated with

black sulphurous water. **Geology:** Very gentle anticline. **Producing Formations:** None developed commercially, but oil occurs in the upper part of Lower Jurassic coal measure, gray sandstone and shale predominating. **Extent of Development:** One test. **Deepest Hole:** 3000 feet drilled by Chinese Government in 1915. **Principal Lease Holders:** Chinese Government.

Eastern Kansu (Prospect)

Location: That part of the vast track of land lying south of the Great Wall, east of Lanchow City and north of Tsingling, Kansu district. **Discovery Data:** Some seepage was found at 15 kilometers southwest of Chenyuanhsien. **Geology:** Similar to northern Shensi, and presumed to be composed of Triassic-Cretaceous continental beds with certain layers of fresh water limestone. It forms the western limb of the big north-Shensi syncline. **Producing Formations:** Undetermined. **Extent of Development:** No wells drilled up to July, 1934.

Hoerhkan (Prospect)

Location: Near the Hoerhkan village, 20 kilometers southeast of Loshan (Chiating) City, Szechuan District. **Discovery Data:** Oil trace in brine wells. **Geology:** Cretaceous red beds slightly tilted. **Producing Formations:** Lower part of lower red beds, (Cretaceous?) might furnish production. **Extent of Development:** Seven among about 30 brine wells producing one or two pounds each of oil a day. **Deepest Hole:** 1200 feet.

Ichun (Prospect)

Location: At Chingniuchuang, northeast of Ichun District City, North Shensi District. **Discovery Data:** Seepage early known, surface geology showed gentle anticline. Deep drill in 1915 to 3900, finding no appreciable oil. Other data on test not available. **Geology:** Gentle anticline; upper part of Lower Jurassic coal measure. **Producing Formations:** None as of August, 1934. **Extent of Development:** Data not available in August, 1934. **Deepest Hole:** 3900 feet, dry, drilled in 1915. **Productive Area:** Undetermined. **Production History:** No commercial production up to July 31, 1934. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Chinese Government.

Kungching (Oil)

Location: 40 kilometers north of Fushun City; see "Tzuliuching and Kungching".

Kweichou Province; Poumuchung, S. W. Kueiyang (Prospect)

Location: These oil impregnated beds are located at Poumuchung, a small village 15 kilometers southeast of Kueiyang District City. **Discovery Data:** Discovered about 16 years ago by the natives. **Geology:** Thin bedded limestone of Permo-Triassic age. Two "geode" beds with the lower one fully filled by dark brown crude oil. Oil smell is noticed from any piece of rock broken from the limestone. Spring water in the vicinity of Poumuchung contains a high percentage of salt. **Producing Formations:** None commercial in August, 1934. **Extent of Development:** One test, a failure. **Deepest Hole:** Government test drilled to 50 meters; dry. Other data not available. **Productive Area:** From north to south about 5 kilometers, from east to west about 10 kilometers; is the size of the impregnated area. It is not developed as a commercial proposition. **Production History:** Non-commercial; data not available. **Present Activity:** No drilling in August, 1934.

Lochuanching (Oil)

Location: 45 kilometers northwest of Weiyuan City and about 65 kilometers northwest of Tzuliuching, Szechuan District. **Discovery Data:** Oil trace in brine wells. **Geology:** North limb of a big domal anticline. **Producing Formations:** Jurassic sandstone at 660-1660 feet. **Extent of Development:** Four of the brine wells producing a very small amount of oil as of June 30, 1934. **Deepest Hole:** A brine well, depth 1710 feet. **Productive Area:** Data not available in July, 1934. **Production History:** Data not available in July, 1934.

Meiyukou (Prospect)

Location: Near Yenpa, 50 kilometers south of Chungking, Szechuan district. **Discovery Data:** Seepage occurs on west limb of gentle anticline apparent at surface. **Geology:** Anticline. **Producing Formations:** None commercially productive to August, 1934. **Extent of Development:** 2 failures up to June 30, 1934. (Tests were only 250 feet deep). **Deepest Hole:** 250 feet. **Productive Area:** Undetermined. **Production History:** About 300 pounds a month for many years. Other data not available. **Present Activity:** None in August, 1934.

Penglaichen (Oil)

Location: 40 kilometers northwest of Suining City, Szechuan district. **Discovery Data:** Gas wells were known since early time. A deep well drilled in 1898 found oil trace at 250 feet depth. Other data not available. **Geology:** Cretaceous red beds slightly tilted. **Producing Formations:** Red beds. **Extent of Development:** Two test wells finished in 1930, with one productive (30 pounds a day); while the other was dry. **Deepest Hole:** 450 feet; dry hole. **Productive Area:** Undetermined. **Production History:** Data not available.

Ssuchakou (Seepage)

Location: 20 kilometers west of Tihua, Sinkiang district. **Discovery Data:** Oil seepages. **Geology:** Undertermined. **Producing Formations:** Data not available. **Extent of Development:** 4 tests, 2 productive with about 10 pounds of oil a day up to June 30, 1934. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** 20 pounds per day as of June 30, 1934. **Principal Lease Holders:** Chinese Government.

Suilai (Prospect)

Location: Four oil producing localities in Suilai district, Chinkoucho, Hungkou, Hsienshuiho, and Polotungku all are situated on the south and southwest of the city, Sinkiang district. **Discovery Data:** Oil seepages. No drilling done up to June 30, 1934. **Geology:** Chinkouho near an anticline of sandstone beds. **Producing Formations:** No production is obtained from wells. **Extent of Development:** No exploratory drilling up to June 30, 1934. **Productive Area:** Undetermined. **Production History:** Less than 100 pounds per day in each locality. **Present Activity:** No drilling in August, 1934.

Tahsien (Prospect)

Location: Near Chiaowanho village. 40 kilometers west of Tahsien City, Szechuan district. **Discovery Data:** Oil seepage occurs. **Geology:** North limb of a dome which extends for about 20 kilometers in length and 11 kilometers in width. **Producing Formations:** Undetermined. **Extent of Development:** No test had been drilled up to June 30, 1934.

Tushantzue (Prospect)

Location: Tushantzue seepage is located southeast of Wusu City and about 340 kilometers west of Tihua, Sinkiang district. **Discovery Data:** Oil seepages, Sinkiang district. **Principal Lease Holders:** Chinese Government.

ASIA—China—*Continued*

Tzuliuching and Kungching (Oil and Gas)

Location: 40 kilometers north of Fushun City and about the same distance from Junghsien, Szechuan district. **Discovery Data:** Trace of oil from brine wells known since about 1894. **Geology:** Most important structure is a dome anticline. Surface rock belongs to Cretaceous with Jurassic sandstone, Triassic limestone, and red sandstone and shale lying below. **Producing Formations:** Triassic limestone 3400 feet; Jurassic sandstone 1480 feet. **Extent of Development:** 6 wells producing oil and about 60 producing gas among 800 of brine wells, as of June 30, 1934. **Deepest Hole:** Deepest well is a 4180-foot dry hole. Other data not available. **Productive Area:** From the eastern productive oil wells to the western ones, the distance measures about 1000 meters. **Production History:** At the end of the last century there were 15 wells with a daily production of about 10,000 pounds in earlier months of the years and of about 1000 pounds in later months. 6 wells were producing 10 pounds a day as of June 30, 1934. **Present Activity:** No drilling in August, 1934.

Yenchang (Oil)

Location: West of Yenchang district city, also northeast of North Shensi district. **Discovery Data:** Seepage known in early history. First well spudded in 1906, by Provincial Government. Completed October 17, 1907, at 250 feet for 25 barrels per day initially. **Geology:** Upper Triassic gray sandstone and green shale. Slightly warped structure. **Producing Formations:** Oil found at 210 to 230 and 520 feet. Dark green oil, sweet, 37° gravity. **Extent of Development:** 12 tests, including 3 oil producers up to June 30, 1934. **Deepest Hole:** Deepest test at 2770 feet finding trace of oil at 255 and 365 feet. **Productive Area:** Undetermined. **Production History:** The first and best producing well (three tons per day) was drilled in 1906. The second one in the same year, yielded 400 pounds a day. The third one drilled in 1929, now producing 200 pounds per day. **Present Activity:** No drilling in August, 1934. **Principal Lease Holders:** Oil Bureau of the Province.

Yenchuan (Seepage)

Location: Seepages at Hsihyukou near Yungping village, about 30 kilometers west of Yenchuan district city, North Shensi district. **Discovery Data:** Two seepages known long ago, still active. **Geology:** Upper Triassic sandstone and shale, about 800 meters above the Yenchang horizon. Several small anticlines. **Producing Formations:** Undetermined. **Extent of Development:** No wells drilled up to June 30, 1934. **Productive Area:** Undetermined. **Production History:** A few pounds per day recovered from seepage as of August, 1934. **Present Activity:** No drilling in August, 1934. **Principal Lease Holders:** Chinese Government.

Yumen (Prospect)

Location: At Chechingpu, Shihyuho, about 190 miles west of Yumen district city and west of Chiayukwan, Kansu district. **Discovery Data:** A great number of oil seepages are found in a valley cut in red beds. The oil is used by the local people for lubricating the cart wheels as well as for lighting purposes. **Geology:** Red beds of late Jurassic to Cretaceous age from an anticline, and are overlain by a thick covering of loess and red clay. **Producing Formations:** Undetermined. **Extent of Development:** No wells had been drilled up to June 30, 1934. **Productive Area:** Undetermined. **Production History:** No constant production. Local farmer works occasionally on the seepage, getting about one to two tons a year. **Present Activity:** No drilling in August, 1934.

For the foregoing data on oil prospects, seepages and productive areas of China, The OIL WEEKLY is indebted primarily to Dr. C. Y. Hsieh, acting director of the National Geological Survey of China. References include "Oil Prospects in Northeastern China" by Myron L. Fuller and Frederick G. Clapp, Bull. of A.A.P.G., Vol. 10, No. 11.

Oil and Gas Fields of Asia—India

Assam District

Badarpur (Oil)

Location: In Assam; Sylhet district; 3 miles from Badarpur Junction; field is in the Surma valley. **Discovery Data:** Oil seepages observed on Badarpur Tea Estate. Small scale development attempted by Badarpur Oil Co., which was taken over by Burma Oil Co. in 1915. **Geology:** Asymmetrical anticlinal dome slightly overturned to the east. **Producing Formations:** Four, ranging from 800 to 1200 feet; oil asphalt base and not fit for refining; is a natural fuel oil. **Extent of Development:** 60 tests on production in 1932. **Deepest Hole:** Some wells drilled below 3000 feet. **Productive Area:** Data not available. **Production History:** In 1920 field yielded 224,900 barrels, representing the field's peak; cumulative total to end of 1931 was 1,405,700 U. S. barrels; estimated 1932 production, 84,050 barrels. **Present Activity:** Data not available. **Principal Lease Holder:** Burma Oil Co.

Digboi (Oil)

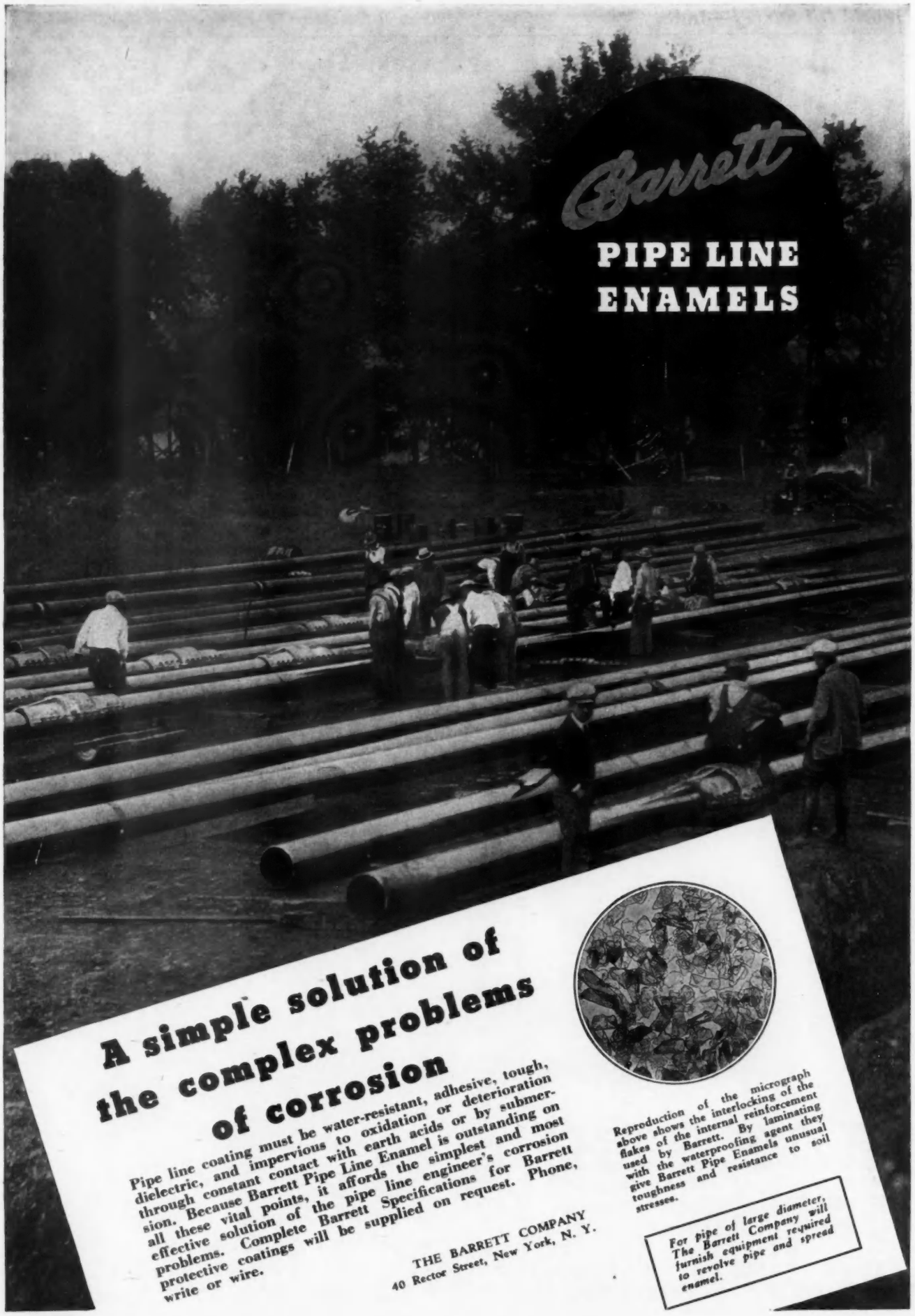
Location: In Assam; near Tinsukia and Makum Junctions; extreme northeastern Assam; 60 miles south of Tibetan border and 40 miles west of Burma border; field is in the Lakhimpur district. **Discovery Data:** Oil seepages; drilling and production began in 1888. **Geology:** Asymmetrical anticlinal dome, with dips of from 30 to 40° on the southern limb. **Producing Formations:** 900 to 1700 feet. Tertiary coal measures. Correlation is very difficult. Paraffin base production with 38° A.P.I. average gravity. **Productive Area:** Estimated at 200 acres in 1933. **Production History:** 700 barrels in 1892; 170,495 barrels in 1917; cumulative total to end of 1931 was 11,245,400 U. S. barrels; estimated 1932 production was 1,405,650 barrels, which probably represents the field's peak. **Present Activity:** Rotary methods preferred; other data not available. **Principal Lease Holder:** Assam Oil Co.

Masimpur (Oil)

Location: In Assam. **Discovery Data:** Commercial production dates back to 1927. **Production History:** 1927 to 1929, inclusive, 56,625 imperial gallons; peak year in 1927, when field yielded 700 U. S. barrels. Cumulative total to end of 1931 was 1400 barrels, with no production expected in 1932. **Present Activity:** Data not available. **Principal Lease Holder:** Burmah Oil Co.

Namchick (Prospect)

Location: One of the Brahmaputra group, 10 miles east of Digboi; in Assam. **Geology:** Asymmetrical anticline dome. **Producing Formations:** Undeveloped commercially.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ASIA—India—*Continued*

Patharia (Oil)

Location: In Assam. **Discovery Data:** First production in 1930. **Geology:** No data. **Producing Formations:** Data not available. **Extent of Development:** 1 well on production in 1932; second test drilled was a dry hole. **Productive Area:** Only 1 producing well. **Production History:** Cumulative total to end of 1931 was 275 barrels from the 1 well on production.

Burma District

General Information

Operations in Burma are almost entirely in the hands of three companies: Burmah Oil Company, British Burmah Petroleum Company, and Indo-Burma Petroleum Company. These companies are reluctant to give out information of the type requested for preparation of the "World Survey".

No new fields were discovered in 1934, but it is believed Burma can maintain its present rate of production (250,000,000 imperial gallons estimated in 1934) for several years to come.

Akyab and Kyaukpyu (Oil)

Location: In Burma, but it geologically belongs to the Assam Gulf, near Bay of Bengal shoreline. **Discovery Data:** Existence of oil known for many years; seepages; pole drilling; region noted for numerous gas and mud volcanoes; other data not available. **Geology:** Folds are acute and close together; these fields not regarded as commercially important. The Tertiary rocks are very tightly folded. **Producing Formations:** In beds of Nummulitic age. **Production History:** 1920 to 1929, inclusive: 70,445 imperial gallons; it has never been great; cumulative total to end of 1931 was 28,100 U. S. barrels. **Principal Lease Holder:** Burmah Oil Co.

Chauk (Oil)

Location: In Burma; see Singu.

Indaw (Oil)

Location: In Burma; sometimes known as Upper Chindwin field, the most northerly field in Burma, on Chindwin river. It is 175 miles north of Yenangyat. As field is in the wet zone of northern Burma, considerable trouble has been caused by fever. **Discovery Data:** Production dates back to 1918. **Geology:** Open dome, gently folded, and with considerable gathering ground. **Producing Formations:** Average completion depth 1100 feet; only shallow sands have been exploited; no sands below 1200 feet found at end of 1932. **Extent of Development:** 45 producing wells in 1932. **Deepest Hole:** More than 3000 feet. Deep drilling hindered by heavy gas pressure. **Productive Area:** About ¼ square mile, or 160 acres. **Production History:** Cumulative total to end of 1931 was 646,000 barrels. 1932 output estimated at 84,050 barrels; 1932 was peak year. **Present Activity:** Area was being subjected to considerable exploratory drilling in 1930. **Principal Lease Holder:** Indo-Burma Pet. Co., Ltd., which refines the oil at Pantha, 22 miles away and on Chindwin river.

Kyaukpyu (Oil)

Location: In Burma; see Akyab. **Production History:** 1920 to 1929, inclusive, 180,761 imperial gallons. **Principal Lease Holder:** Burmah Oil Co.

Lanywa (Oil)

Location: Upper Burma; west bank of Irrawaddy river; field in 1929 considered part of Singu field, which see. **Discovery Data:** See "Singu" field; first commercial production in 1924; Lanywa considered structurally as southern part of Yenangyat field or as the northern part of Singu field. **Geology:** Productive area lies in an embayment of the river behind the Lanywa-Sitpin sand bank. **Producing Formations:** Productive area submerged in flood seasons. Sands at 1700 feet and 2700 feet. **Extent of Development:** 30 wells on production in 1932. **Deepest Hole:** No data. **Productive Area:** Estimated in 1933 at 400 acres. **Production History:** Peak in 1932. Cumulative to end of 1931 was 1,265,100 U. S. barrels; estimated recovery for 1932: 702,850 barrels. **Present Activity:** In 1934 practically all producing wells were pumped by electricity, and there was a plant for recovery of petrol from gas. **Principal Lease Holder:** Indo-Burmah Pet. Co.

Minbu (Oil)

Location: In Burma; includes Palanyon and Yethaya fields, which see. **Discovery Data:** Production dates back to 1910. **Geology:** Anticlinal structure in which the fold is steeply asymmetrical and even overfolded in places. **Producing Formations:** See Palanyon and Yethaya fields. **Extent of Development:** 350 wells on production in 1932. **Deepest Hole:** Data not available. **Productive Area:** Data not available. **Production History:** Peak year was in 1928 when field yielded 168,650 U. S. barrels; cumulative total to end of 1931 was 2,277,200 barrels; 1932 production estimated at 140,550 barrels. 351 wells on production in 1934 each yielded an average production of 1 barrel per day. **Present Activity:** Shallow wells drilled with portable rotaries. **Principal Lease Holders:** Burmah Oil Co., Ltd., and Yomah Oil Co.

Padaukpin (Oil)

Location: In Indo-Burma; one of the Thayetmyo fields, which see. **Discovery Data:** Production dates back to 1922. **Productive Area:** Estimated at 20 acres in 1932. **Production History:** Peak was in 1922 when this field and Yenanma field together yielded 64,650 U. S. barrels. Cumulative total for the two fields to end of 1931 was 323,300 barrels; estimated output for the two fields for 1932 was 11,250 barrels.

Palanyon (Oil)

Location: In Burma; one of the Minbu group; see "Minbu." **Geology:** Field is due to crest maxima on the main structure. **Producing Formations:** Relatively deep; one below 2300 feet. Oil contains little gasoline. **Deepest Hole:** Oil has been found below 2300 feet. **Principal Lease Holder:** Burmah Oil Company, Ltd.

Sabe (Prospect)

Location: In Burma. **Geology:** Field due to one of the crest maxima on sharply asymmetrical anticline. Only crude obtained thus far must be dehydrated. Field is not of much importance.

Singu (Oil)

Location: In Burma; sometimes called Chauk field; fold of field crossed by Irrawaddy river. Connected by pipe line with Yenangyaung. **Discovery Data:** Production began in 1901. C. E. Grimes examined and reported favorably on the area in 1897. **Geology:** On same anticline with Yenangyat and Sabe fields. **Producing Formations:** Sands at 1400; 1800 and 3000 feet; more regular than at Yenangyaung. Oil is 35° A.P.I. gravity mixed base. **Extent of Development:** 500 wells on production in 1932. **Deepest Hole:** In 1929 a 5900-foot well was drilled by Hessford Development Syndicate, but found no deep pay. **Productive Area:** Estimated at 2500 acres in 1933. **Production History:** As field is held as a semi-

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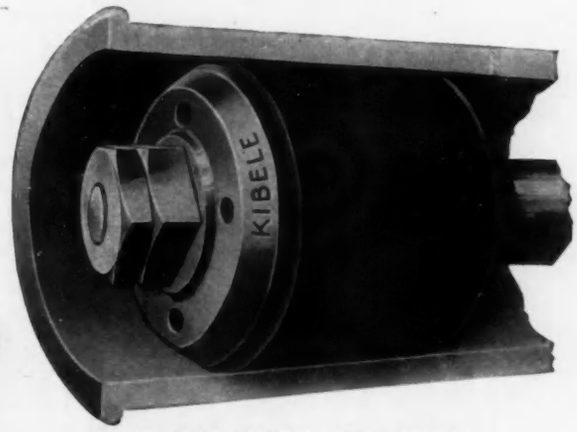

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ASIA—India—*Continued*

reserve, these figures do not indicate the potentiality of the field. Production began in 1901. Peak year 1928 when 3,204,950 barrels were produced; cumulative total to end of 1931 was 56,705,100 U. S. barrels; 1932 production estimated at 2,808,500 barrels. In 1934 there were 448 producing wells in the field. **Present Activity:** Rotary drilling; electric power used mostly. **Principal Lease Holders:** Burmah Oil Co.; British Burmah Pet. Co., Rangoon Oil Co., Hesford Development Syndicate.

Thayetmyo (Oil)

Location: In Upper Burma; includes Padaukpin and Yenanma fields, which see. **Discovery Data:** Hand-dug wells many years ago. Commercial production prior to 1920. **Production History:** Produced 2,319,835 imperial gallons in 1922; and 66,372 imperial gallons in 1921. Production 1920 through 1929, inclusive: 10,781,-445 imperial gallons. **Principal Lease Holder:** Indo-Burmah Pet. Co., Ltd.

Yenangyat (Oil)

Location: In Burma. **Discovery Data:** Wells were first produced in 1893 (drilled wells); although native wells were producing in 1887; in 1855, Dr. Thomas Oldham, the father of Indian Geological Survey, recognized the possibilities of Yenangyat. **Geology:** Sharply asymmetric anticline. **Producing Formations:** Only the lower producing sands of Singu are included in the section at Yenangyat. **Extent of Development:** Few wells drilled in district due to fact that initial yields are low (less than 15 barrels per day). **Production History:** Peak of field in 1903 when 646,600 U. S. barrels were recovered. Cumulative total to end of 1931 was 6,213,100 U. S. barrels; 1932 output estimated at 42,000 barrels. **Present Activity:** Data not available. **Principal Lease Holder:** Burmah Oil Co., Ltd.

Yenangyaung (Oil)

Location: In Burma; known in 1930 as the "wonder field of Burma." **Discovery Data:** In 1800 there were more than 500 producing hand-dug wells. Production from wells drilled with machinery dates back to 1888. Burmah Oil Company commenced the first well in 1887. **Geology:** Gentle, elongated dome, ½ mile wide and 4 miles long. Fold is slightly asymmetric with gentle dip on eastern side. Vertical mud veins are numerous in the field. **Producing Formations:** Multiple sands; noted for their high concentration of oil per acre; shallow sands at 350 and 650 feet; intermediate sands at from 1000 to 2400 feet; lower sands from 2400 to 3000 feet, which marks top of a strong gas sand. Those below 3000 feet known as deep sands. Gravity of oil: 30 to 33° A.P.I. **Extent of Development:** In excess of 2750 wells in 1931, including 185 hand-dug wells; estimated 3000 wells on production in 1932. **Deepest Hole:** More than 5000 feet in 1931. **Productive Area:** Estimated at 820 acres in 1933. **Production History:** Peak year was in 1916 when field yielded 6,747,250 U. S. barrels. Cumulative total to end of 1931 was 95,585,900 barrels; estimated 1932 production was 3,789,500 barrels. 1933 production was 7 percent in excess of that for 1932. There were 3017 producing wells in the field in 1934. **Present Activity:** Rotary and cable tool drilling. Field is rated as one of the most efficiently operated in the world. **Principal Lease Holders:** Burmah Oil Co., Ltd., controls 80 percent of field's production; other operators are British Burmah Pet. Co., Rangoon Oil Co., and Indo-Burma Petroleum Co.

Yenanma (Oil)

Location: In Indo-Burma; one of the Thayetmyo fields, which see; see also Padaukpin field. **Discovery Data:** Commercial production dates back to 1922. **Geology:** See "Location." **Producing Formations:** Crude resembles that of Yenangyuang. **Productive Area:** Estimated at 20 acres in 1932. **Production History:** Peak came in 1922; other production data included with Padaukpin field, which see.

Yethaya (Oil)

Location: In Burma; grouped generally under "Minbu" which see. **Geology:** field is due to one of the crest maxima on the structure. **Producing Formations:** Relatively deep; oil contains very little gasoline. **Principal Lease Holder:** Burma Oil Company, Ltd.

Punjab District

Dhulian (Oil)

Location: In the Punjab basin; 7 miles west of Khaur. **Discovery Data:** Not available. **Geology:** Anticlinal dome. **Principal Lease Holder:** Altock Oil Co.

Jhatla (Oil)

Location: In the Punjab; between the Indus and Jhelum rivers. **Discovery Data:** Operations begun in 1922. **Geology:** Field located on a broad anticlinal dome on the southern limb of the Punjab Basin. **Producing Formations:** Data not available. **Deepest Hole:** Whitehall drilled a test to below 6000 feet; not commercially productive. **Principal Lease Holder:** Whitehall Petroleum Company.

Kharpa (Oil)

Location: In the Punjab; between the Indus and Jhelum rivers; 18 miles west Khaur field. **Discovery Data:** Drilling began in 1915. **Geology:** Nose of a faulted anticline. **Producing Formations:** Data not available.

Khaur (Oil)

Location: In Punjab; between the Indus and Jhelum rivers, northeast of Lahore; 40 miles from Rawalpindi, where there is a refinery; sometimes known as the Attock field. **Discovery Data:** Shallow production at 500 feet in 1914. **Geology:** Anticlinal dome, elongated and slightly asymmetric. Maximum flank dip 45°; gentle pitch 7°. **Producing Formations:** In 1920 ranged from 200 to 1600 feet; in 1929 most of the oil was coming from the 3800-foot sand. Oil thought to be Nummulitic in origin but to have migrated to the younger Murree beds above. **Production History:** Production in 1918 was 18,760 barrels; peak considered to be 1929, when field produced 534,150 U.S. barrels. Cumulative total to end of 1931 was 2,808,500 barrels; 1932 output estimated at 196,750 barrels. **Principal Lease Holder:** Attock Oil Company.

For the foregoing data on Assam, Burma and Punjab, India, THE OIL WEEKLY found especially helpful papers by Eric J. Bradshaw in the A. I. M. M. E. Transactions of 1931 and one on "Petroleum in Burma and India," by L. Dudley Stamp, in the A. I. M. M. E. Transactions of 1933.

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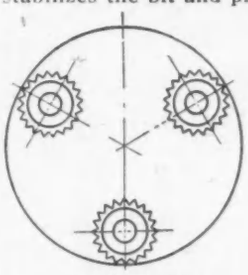

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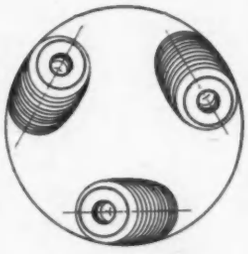

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At left is a drawing illustrating a comparison of hole contact between the Sievers Reamer and the general run of reamers. The drawing illustrates in itself the different action of the SIEVERS REAMER and the large amount of wall contact acquired through the use of ONE Reamer. In many cases ONE SIEVERS REAMER is used for reaming or stabilizing instead of using a double 3-point reamer of other designs. The results of such a hook up plus the decreased costs involved, has proven a tremendous advantage to the operator.

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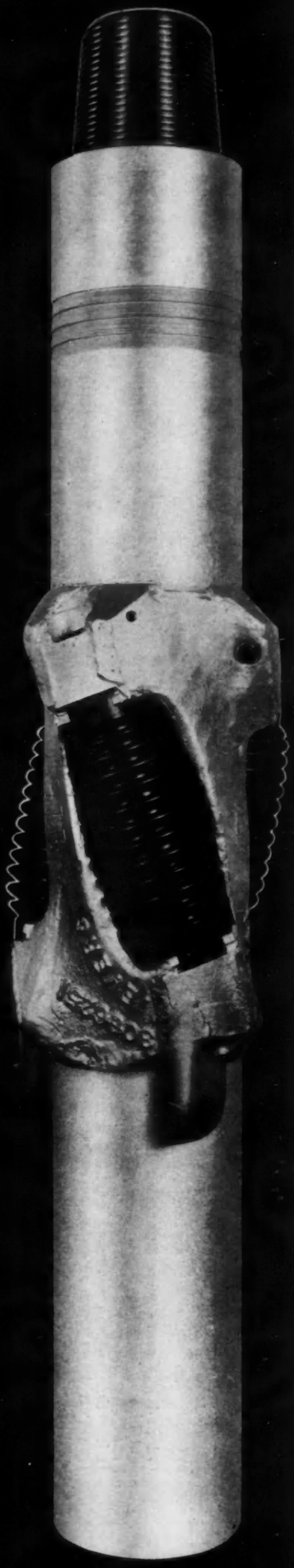


Oil and Gas Fields of Asia—Iraq

General Information

Oil and gas seeps were known in Iraq over 5,000 years ago, according to ancient history and the Bible. For ages, oil has been skimmed from seepages and used.

It is estimated Iraq produced 2,411,000 barrels of oil in 1934.

Iraq Petroleum Company (known prior to June, 1929, as Turkish Petroleum Company), hold a concession east of the Tigris River, has been operating it since 1926, having started drilling April 5, 1927. The company represents British, American, and French interests. Prior to completion of pipe lines to the Mediterranean from Kirkuk, the company confined production only to that at Kirkuk, used in field operations. Drilling meanwhile was confined mostly to Kirkuk field.

The Iraq market was being supplied, however, by the Khaniqin Oil Company (subsidiary of Anglo-Persian Oil Company in the Transferred Territories of Iraq), beginning March 12, 1927; the oil coming from Naft Khaneh field, and being refined at plant at Alwand.

The pipe line that was placed in operation in early 1935 between Kirkuk field and the Mediterranean Sea is the property of Mediterranean Pipe Line Company, a subsidiary of the Iraq Petroleum Company. From the oil fields there is a double line 150 miles southwesterly to a third pumping station near west bank of the Euphrates. Six miles west of there the system branches. A southern branch traverses British mandated territory 467 miles to Haifa, a port on the Mediterranean. The northern fork extends, mainly through French Syria, 381 miles to Tripoli.

In compiling following information on Iraq fields, the published annual *Transactions* of the A. I. M. E. were especially helpful.

Injana (Prospect)

Location: North of Khaniqin and southeast of Palkhana area, which see. **Discovery Data:** Turkish Petroleum Company was drilling test here in 1927, and well was reported showing for large production. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly Turkish) Petroleum Company.

Jambur (Prospect)

Location: Midway between River Lesser Zab and Adhaim River; southwest of Kirkuk. **Discovery Data:** Turkish Petroleum Company was drilling initial test in 1927. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly) Turkish Petroleum Company.

Kanuqau (Prospect)

Location: Across the Tigris River, to the east, from Quiyara field, which see. About midway between Quiyara field and Baba Gurgur. **Discovery Data:** Turkish Petroleum Co. had made location in 1927 for its initial test. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly Turkish) Petroleum Co.

Khashm Al Abamar (Prospect)

Location: Northwest of Khaniqin; between Adhaim and Diyala Rivers. **Discovery Data:** Turkish Petroleum Company was drilling initial test in 1927. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly Turkish) Petroleum Company.

Khormor (Prospect)

Location: East of Kirkuk; north of Polkhana field. **Discovery Data:** Turkish Petroleum Company had made location in 1927 for initial test. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly Turkish) Petroleum Co.

Kirkuk (Oil)

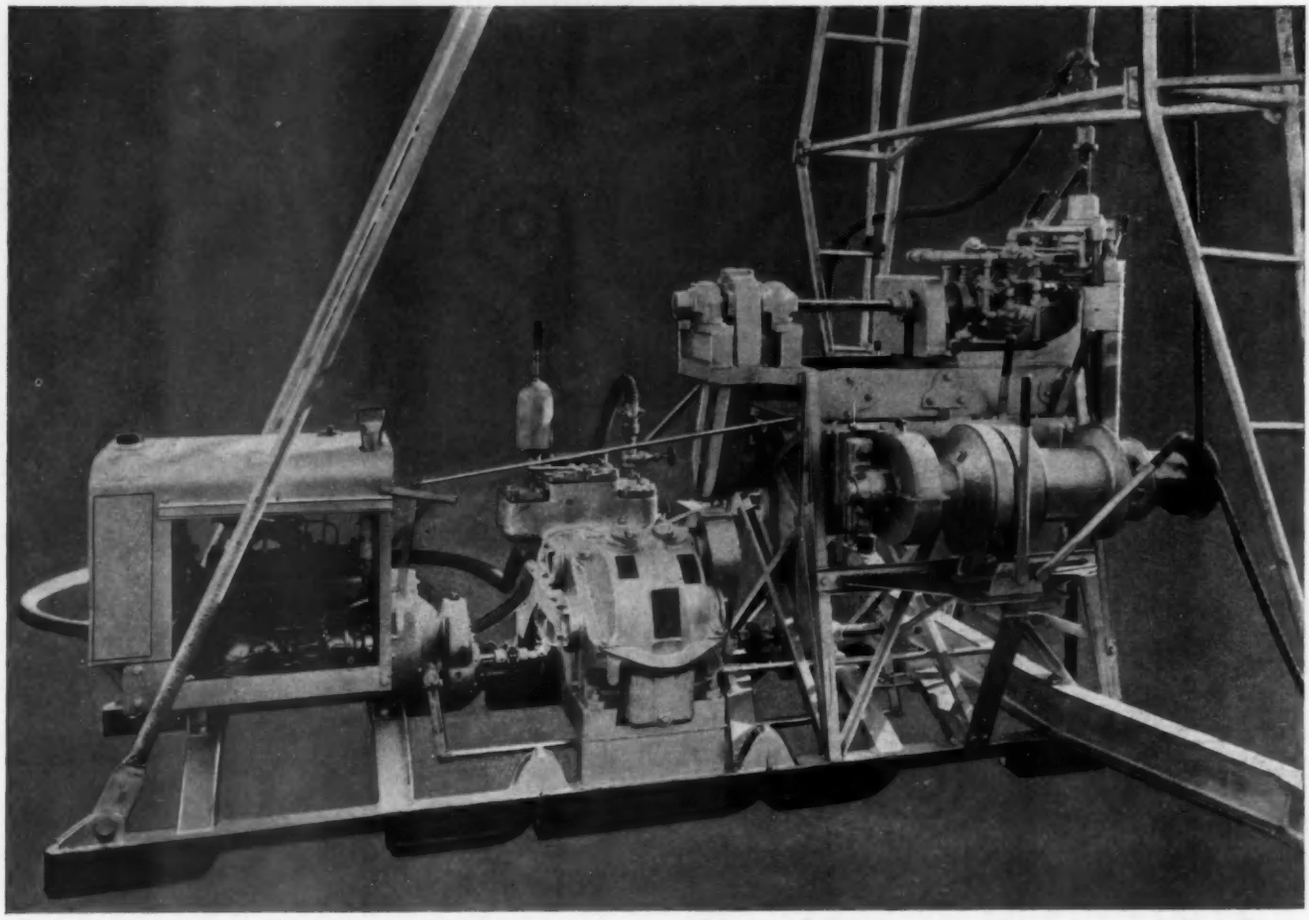
Location: West and little north of Kirkuk; east of River Lesser Zab, a tributary of the Tigris. **Discovery Data:** Discovered by Turkish Petroleum Company, Ltd., October 14, 1927. (The company was renamed Iraq Petroleum Co. in June, 1929). The discovery well was Baba Gurgur No. 1, which initially flowed 95,000 barrels 37° A.P.I. gravity oil daily from Ashmari limestone at 1520 feet. **Geology:** Data not available. **Producing formations:** Ashmari limestone at 1250 to 3500 feet. Oil averages 35.7° A.P.I. gravity, has mixed base, and is sulfurous. The crude is comparable with Mid-Continent oils of similar gravity. Wells flow under relatively low pressures. **Production History:** Following discovery, field remained shut in pending completion of the pipe lines to the Mediterranean Sea. (Capacity operation of 84,000 bbls daily expected before middle of 1935. Surveys for the lines were started in 1931, and filling of the lines began in early 1935). **Principal Lease Holder:** Iraq Petroleum Company (which was known prior to June, 1929, as Turkish Petroleum Co.)

Naft Khaneh (Khaniqin) (Oil)

Location: At Khaniqin. (In the Transferred Territories of Iraq). Partly in Iraq, partly in Persia. Near Kermanshah. **Discovery Data:** Field was already partially developed in 1927. Had been discovered after World War and prior to 1925 by Khaniqin Oil Co., a subsidiary of Anglo-Persian Oil Co., Ltd., through a well (No. 6) completed in the thick Marine limestone series. **Geology:** Data not available. **Producing Formations:** Ashmari limestone at 3000 feet and deeper. Wells flow under relatively high pressures. **Extent of Development:** During 1929-1931 drilling was suspended by the Anglo-Persian Oil Co. interests pending construction of pipe line to the Mediterranean. **Deepest Hole:** Data not available. **Productive Area:** A field of major dimensions. **Production History:** In 1933 Anglo-Persian Oil Co. was supplying local markets through the Rafidain Oil Co. Since March 12, 1927, the Anglo-Persian interests had been producing at Naft Khaneh and refining at Alwand around 750,000 barrels annually for the local markets. Meanwhile, pending construction of a pipe line to the Mediterranean, Iraq Petroleum Co. was producing no oil except for field operations. Information from Transactions, A.I.M.M.E. (1934) Vol. 107, Pet. Dev. & Tech., p.p. 389-90. Also from Transactions, 1928-29. **Note:** Turkish Pet. Co. and Iraq Pet. Co. together had produced over 2,000,000 barrels from all areas in Iraq during 1927-1933; but most had been returned to the reservoir through the wells. **Principal Lease Holders:** Anglo-Persian Oil Co. and Iraq Petroleum Co. (which was known as Turkish Petroleum Co. prior to June, 1929).

Palkhana (Oil)

Location: Southeasterly from Kirkuk; due east of Tuz; due north of Khaniqin. **Discovery Data:** Turkish Petroleum Company's No. 1 was completed in 1927 for 100 barrels daily production; same year it was deepened and yielded 200 barrels 22 gravity oil daily at 1320 feet. To the southeast, same company's No. 2 yielded 700 barrels daily at 1260 feet in 1927. **Geology:** Data not available. **Producing Formation:** Limestone. **Principal Lease Holder:** Iraq Petroleum Company (which was known prior to June, 1929, as Turkish Petroleum Co.)



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ASIA—Iraq—*Continued*

Qaiyarah (Quiyara) (Oil)

Location: About midway between Shergat and Mosul, west of Tigris River. North and some east of Bagdad. **Discovery Data:** First commercial production by Turkish Petroleum Co., Ltd. (known since June, 1929, as Iraq Petroleum Co.), October 13, 1927, with completion of a wildcat for initial flow of 5000 barrels daily from "Main Limestone" at 900 feet. During World War Germans had drilled several shallow wells, which yielded small production. **Geology:** Data not available. **Producing Formations:** Limestone at 700 to 1100 feet. Discovery well was reported to have penetrated three separate zones capable of yielding 5000 barrels daily each. Oil was 22° A.P.I. gravity, and similar in some respects to heavy Mexican crude. Wells flow under moderately low pressures. **Production History:** Field was abandoned in 1928. **Present Activity:** None in January, 1935. **Principal Lease Holder:** Iraq Petroleum Company.

Tarjil (Prospect)

Location: Across Adhaim River from Baba Gurgur field, to the east; northeast of Kirkuk. **Discovery Data:** Turkish Petroleum Co. was drilling initial test of area in 1927. **Geology:** Data not available. **Principal Lease Holder:** Iraq (formerly Turkish) Petroleum Company.

Oil and Gas Fields of Asia—Japan

General Information

A record of Japan's (Nippon's) oil production, dating back to 1875, is found in the first section of the "World Oil Survey" in this issue. Relatively little information has been published or reported on Japanese fields, and only limited data were available for this presentation, despite appeals made to operators and government officials in Japan, oil reserves of which are largely a government controlled proposition, the government working through Nippon Oil Company, holdings of which perhaps exceed holdings of all other operators combined.

Production in Sakhalin: Japanese companies have concessions and oil production in fields of northern half of the island of Saghalien (or Sakhalin), along with the oil trust of the Soviet government, which controls that northern half of the island.

In 1927 it was reported the Japanese were producing around 1600 barrels daily in Saghalien from 13 wells, and had 10 wells drilling late in the year. Estimated Japanese production in Saghalien that year was 350,000 barrels.

Details on the fields of Saghalien appear under U. S. S. R. (Russia).

In the southern half of the Saghalien island (Karafuto) no oil production has been found.

Akita-Ken (Oil)

Location: Productive area in province of Akita (which also contains city of that name); in northwestern portion of Honshu Island (largest island of the empire); northwest of Sendai. Includes also Toyokawa field. **Producing Formation:** Found in the Tertiary terrains.

Boryitzu (Oil)

Location: Northeastern part of the island of Formosa (Taiwan). **Discovery Data:** Discovery well, producing 200 barrels daily initially, was completed early in 1927.

Hokushu (Oil)

Location: In west central portion of island of Hokkaido (Yezo), north of largest island of the empire.

Kiusui (Gas)

Location: Formosa. **Geology:** Flat anticline. **Producing Formations:** Gas sands at 800, 1050, 1360, and 1440 meters. **Principal Lease Holder:** Nippon Oil Co.

Niigata-Ken (Oil)

Location: Producing area in province of Niigata (which also contains city of that name); in north central portion of island of Honshu (largest in the empire); about 125 miles northwesterly from Tokyo. **Producing Formation:** In Tertiary terrains.

Tabanti (Oil)

Location: On the island of Formosa (Taiwan), east central portion.

Miscellaneous Fields

Other Japanese fields on which no data were available and part of which may be variations of names used above, include Gyunikuzaki, said to produce from 1240 to 1400 meters; Ishihari; Niitsu; Nishiyama; Omo, in the province of Echigo; Shukkoko in Formosa; Taiwan on Formosa; Takamach; Yuri, at Michikawa-mura, Akita Ken.

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Oil and Gas Fields of Asia—Persia

General Information

The Anglo Persian Oil Company, Ltd., was formed in 1909 to work the D'Arcy concessions. (See below, under Schuster prospect). The concessions were designed to run 60 years, beginning May, 1901, and to be effective throughout the Persian Empire, with exception of the provinces of Azer, Badjan, Gilan, Mazanderán, Astarbad, and Khorasan, on the northern frontier.

The British government in 1914 acquired an interest in the Anglo Persian Oil Company, Ltd.

Ahmedi (Prospect)

Location: Southern Persia, about 100 miles north of Qishm Island, which see. North of Bunder Abbas. **Discovery Data:** Showings of oil reported prior to 1920. **Production History:** Oil shows mentioned in report in 1920. **Principal Lease Holders:** See "General Information."

Ahwaz (Prospect)

Location: In province of Arabistan, western Persia, north of Persian Gulf, about 35 miles southwest of Maidan-i-Naphtun structure. **Discovery Data:** Not available. **Geology:** Elongated domes on large anticline. **Producing Formations:** Hard, porous limestone, at depths below 1200 feet. **Production History:** Shows of oil mentioned in a report in 1920. **Principal Lease Holders:** See "General Information."

Beheban (Prospect)

Location: Western Persia, north of Persian Gulf, along foothills of Bakhtiari Mountains. **Discovery Data:** Oil showings reported prior to 1920. **Production History:** Shows of oil mentioned in a report in 1920. **Principal Lease Holders:** See "General Information."

Daliki (Prospect)

Location: In Fars province, southwest Persia, near Persian Gulf. **Discovery Data:** Many years ago a 124-foot well yielded little oil and semi-solid bitumen. Drilled by Persian Bank Mining Rights Corp. **Geology:** Data not available. **Producing Formations:** 124 feet; other data not available. **Production History:** A report in 1920 mentioned oil indications. **Principal Lease Holders:** See "General Information."

Darab (Prospect)

Location: In Fars province, southwest Persia, about 125 miles from Persian Gulf. **Production History:** Report in 1920 mentioned oil shows. **Principal Lease Holders:** See "General Information."

Dehahkuh-i-balae (Prospect)

Location: South of Astrabad and farther inland. **Production History:** Oil shows mentioned in report in 1920. **Principal Lease Holders:** See "General Information."

Enzelli (Prospect)

Location: On north frontier, along south shore of Caspian Sea. In Province of Gilan. **Discovery Data:** Surface geology prior to 1920. **Production History:** Oil shows mentioned in report in 1920. **Principal Lease Holders:** See "General Information."

Fasa (Prospect)

Location: In Fars province, southwest Persia, about 125 miles from Persian Gulf. **Discovery Data:** Oil indications observed prior to 1920. **Production History:** Report in 1920 discussed oil shows. **Principal Lease Holders:** See "General Information."

Gumish Tepe (Prospect)

Location: Northwest of Astrabad, Province of Astrabad, near southeast shore Caspian Sea. **Discovery Data:** Indications of oil observed prior to 1920. **Geology:** Data not available. **Production History:** Oil shows mentioned in report in 1920 **Principal Lease Holders:** See "General Information."

Haft Kel (Oil)

Location: About 55 miles south-southwest of Masjid-i-Sulaiman field, which see. (Crude gravitates 50 miles to Kut Abdullah, a main line booster station, 67 miles from refinery at Abadan. **Discovery Data:** Production to main pipe line from Haft Kel was started in November, 1929. In previous year oil had been discovered, and field was being defined, while arrangements were being made to produce oil commercially. **Geology:** Data not available. **Producing Formations:** Asmari (dolomitic) limestone, which is highly productive, at depths of 2000 to 5000 feet, variations being due in part to broken topography of the South Persian fields. Wells yield around 20,000 barrels oil production daily, initially, under standard conditions. Some wells have yielded as much as 40,000 barrels daily initially against over 600 pounds back pressure. Closed in pressures of oil wells average around 700 pounds; gas wells, 1500 pounds. Oil is similar to Masjid-i-Sulaiman crude. **Productive Area:** Field was still in process of delimitation in 1934. At opening of 1933 limits of field had not been reached, but productive area of about 40 square miles had been proved, and it was assured the field would be of same order as Masjid-i-Sulaiman field. **Production History:** Production to main pipe line was begun in November, 1929. From then to end of 1933 the field had produced 50,239,688 barrels, or 6,585,598 tons, exclusive of oil reinjected into the reservoir. The output by years, according to Anglo-Persian Oil Co., Ltd., figures, published in the Transactions of the American Institute of Mining and Metallurgical engineers, was as follows: in 1929 (2 mos.): 26,884 tons, (205,471 barrels); in 1930: 1,013,433 tons, (7,745,523 barrels); in 1931: 1,502,412 tons, (11,482,720 barrels); in 1932: 1,955,798 tons, (14,926,511 barrels); in 1933: 2,087,071 tons, (15,879,463 barrels). **Principal Lease Holder:** Anglo-Persian Oil Co., Ltd.

Khanikin (Prospect)

Location: In northwest Persia, province of Azerbajan. **Discovery Data:** Oil indications observed prior to 1920. **Production History:** Oil shows reported present in 1920. **Principal Lease Holders:** See General Information.

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ASIA—Persia—*Continued*

Kheri (Prospect)

Location: In Fars province, north of Persian Gulf, southwest part of Persia. **Discovery Data:** Indications of oil reported in 1920. **Geology:** Not available. **Principal Lease Holders:** See "General Information."

Khoremabad (Prospect)

Location: On south shore Caspian Sea, province of Mazanderan. **Discovery Data:** Gas shows mentioned in report of 1920. **Principal Lease Holders:** See "General Information."

Kormanshah District (Oil)

Location: In northwest Persia, province of Ardelan. **Discovery Data:** Area said to be producing in 1920; other data not available. **Production History:** Report in 1920 said area was producing oil. **Principal Lease Holders:** See "General Information."

Kuhi-Sung-Atush (Prospect)

Location: In Fars province, 30 miles east of Darab, which see. **Discovery Data:** Not available: Gas showings mentioned in a report published in 1920. **Principal Lease Holders:** See "General Information."

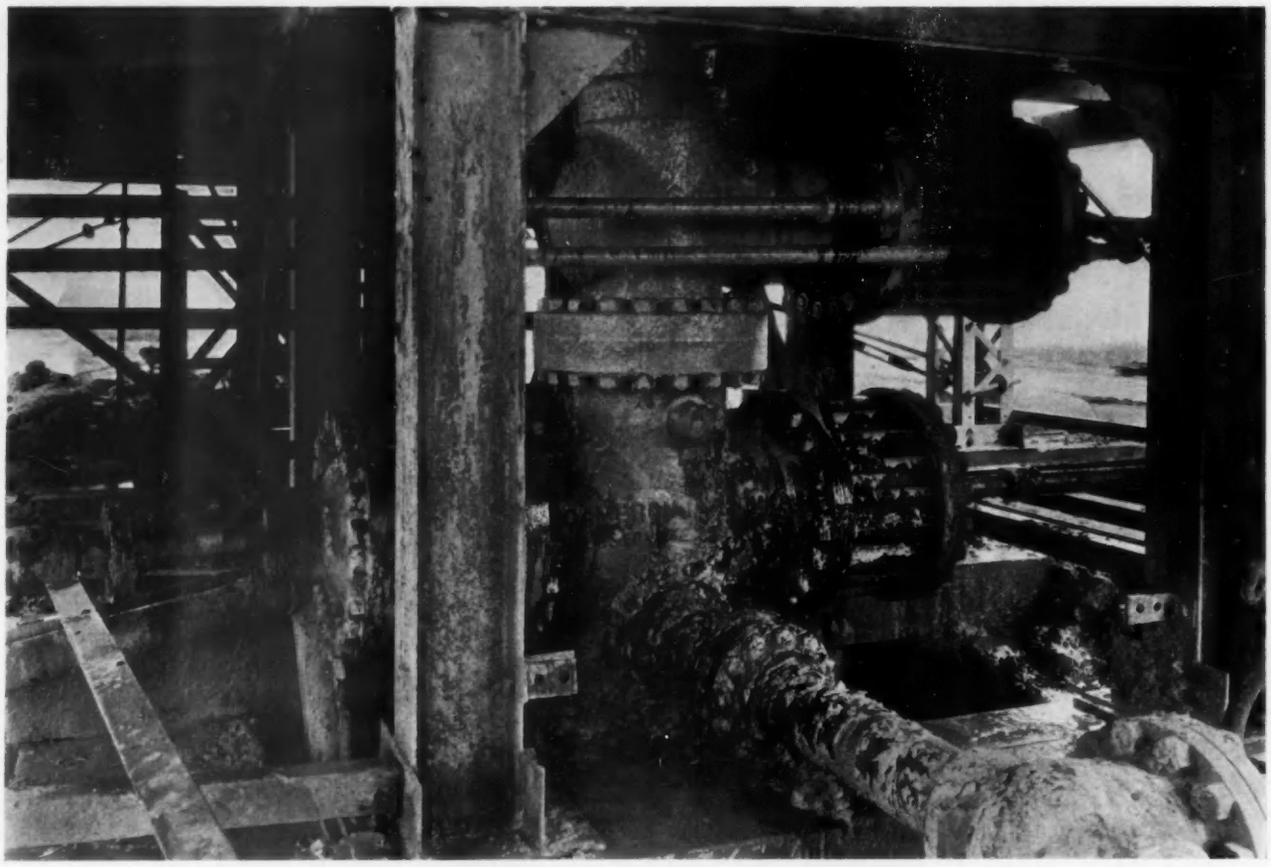
Maidan-i-Naphtun Area (Oil)

Location: West Persia, north of Persian Gulf, along foothills of Bakhtiari Mountains. About 140 miles north-northeast of the Port of Abadan, which is at the head of the Persian Gulf. Pipe line extends to Abadan. **Discovery Data:** Seepages; first production in 1910. **Producing Formations:** Oil contains considerable sulphur; some production from 1000 to 2800 feet; other data not available. **Extent of Development:** To 1916, about 30 wells had been completed and all were still flowing producers. Considerable additional drilling by 1920. Production was 600,000 barrels in 1912, then increased. **Productive Area:** Proved for distance of 10 miles along the strike, northwest-southeast. **Production History:** Was producing in 1910. In 1920 there was in use a pipe line extending 145 miles to refinery at Abadan, at north end Persian Gulf. Same pipe line also taps Ahwaz field. The refinery began operating in 1913. Production in Maidan-i-Naphtun (or Naftun) from 1912 through 1928 has been reported by Sir John Cadman as totalling 34,590,992 tons, (260,470,168 U. S. barrels of 42 gallons each). For the five years, 1929-1933, inclusive, Anglo Persian Oil Company has reported Persian production by two fields, Masjid-i-Sulaiman and Haft Kel, which see. **Principal Lease Holder:** Anglo Persian Oil Co., Ltd.

Masjid-i-Sulaiman (Oil)

Location: A unit of the Maidan-i-Naftun area, which see. **Discovery Data:** Commercial production since 1911. **Geology:** Anticline, 20 miles long and 4 miles wide, including three domes. Topography much broken; well elevations differ as much as 1100 feet. **Producing Formations:** Very open, dolomitic, Asmari limestone, with high productivity. Shows much variation in texture and porosity. Depths to the limestone vary from 800 to 5000 feet, with well elevations varying as much as 1100 feet. Hydrogen sulfide gas present with oil. Oil is brown, free of water, has mean specific gravity of 0.837. Wells flow initially 1000 to 10,000

This map is a section taken from a copyrighted map of International Map Company, New York



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ASIA—Persia—*Continued*

barrels daily. Promising results in first well drilled below regular producing formations in 1932. **Production History:** For five years, 1929-1933, total production 183,944,694 barrels, or 24,097,671 tons. Previously, output was included under Maidan-i-Naphtun area, which see. The 1929-1933 yearly production figures for Masjid-i-Sulaiman, as reported by Anglo-Persian Oil Co., Ltd., in the Transactions of the A. I. M. E., 1934, were as follows: in 1929: 5,434,071 tons, (41,531,-828 barrels); in 1930: 4,925,869 tons, (37,647,713 barrels); in 1931: 4,248,086 tons, (32,467,514 barrels); in 1932: 4,490,010 tons, (34,444,759 barrels); in 1933: 4,999,635 tions, (38,852,880 barrels). **Principal Lease Holder:** Anglo-Persian Oil Co., Ltd.

Mendeli (Prospect)

Location: In northwest Persia, province of Luristan. **Discovery Data:** Report of 1920 states oil shows had been observed. **Principal Lease Holders:** See "General Information."

Naft Khaneh (Oil)

Location: Partly in Persia, partly in Iraq; 20 miles from Khaniqin; near Kermanshah. See under Iraq for details. **Discovery Data:** First production prior to 1925. In 1928 still shut in, because of no pipe line outlet. **Geology:** Barren broken desert topography; cap rock 2450 feet and deeper. **Producing Formations:** High pressure gas sand found at 2000 to 3000 feet; oil 45° A.P.I. paraffin base; other data not available.

Ouschachi (Prospect)

Location: On western frontier, northwest part, north of Lake Urumich. **Discovery Data:** Oil shows reported found in 1920. **Principal Lease Holders:** See "General Information."

Pusht-i-Kuh District (Prospect)

Location: Northwest Persia, province of Luristan. **Discovery Data:** Oil shows mentioned in report in 1920. **Geology:** Anticline. **Principal Lease Holders:** See "General Information."

Quishm Island (Prospect)

Location: Southern Persia, near Gulf of Oman, between Persian Gulf and Arabian Sea: **Discovery Data:** Oil seeps present. Small quantity of high grade oil found in well drilled in 1924. **Geology:** Data not available. **Extent of Development:** Persian Bank Mining Rights Corp. drilled an unsuccessful test years ago. No development in 1925, despite oil shows found previous year.

Ram-Hormuz (Prospect)

Location: In western Persia, north of Persian Gulf, along foothills of Bakhtiari Mountains. **Discovery Data:** Indications of oil mentioned in a report of 1920. **Principal Lease Holders:** See "General Information."

Sarhad Hills (Prospect)

Location: On southeast frontier of Persia. **Discovery Data:** Oil shows mentioned in a report of 1920. **Geology:** Data not available.

Schuster (Prospect)

Location: Along foothills of Bakhtiari Mountains, western Persia, north of Persian Gulf. **Discovery Data:** First known oil development in Persia was about 57 miles northwest of Schuster, at Kir-ab-us, Susiana, now known as Kirab. About 450 B. C., Herodotus reported well near Ardericca that yielded oil along with asphalt and salt. About 1905 W. K. D'Arcy drilled a test to 1100 feet, and it spouted oil 70 feet in the air and destroyed derrick. Oil here is rich in lubricants. **Producing Formations:** Data not available. **Production History:** Shows of oil mentioned in a report in 1920. **Principal Lease Holders:** See "General Information."

Semnan (Prospect)

Location: On margin of Khorasan desert, about 125 miles east of Teheran, Persia. **Discovery Data:** Report in 1920 mentioned oil shows.

Shakhtesar (Prospect)

Location: Near southern shore of Caspian Sea. **Discovery Data:** Oil shows reported in 1920.

Zohab (Prospect)

Location: In province of Azerbaijan, northwest Persia. **Discovery Data:** Oil has been produced for hundreds of years from hand-dug wells. Some produced over 50 years. **Geology:** Data not available. **Producing Formations:** Shallow. **Principal Lease Holders:** See "General Information."

The foregoing information on oil fields and prospects of Persia is based to a considerable extent on transactions of the A.I.M.E., in particular on those of 1933 and 1934.

Operators in Persia are reticent about giving out information on fields there similar to information furnished for this survey by other operators in other countries.

WORLD OIL SURVEY

East Indies
and Australasia

A producing well in the Teak Forest of Java.

The discovery well of Java was drilled in 1893.

Oil and Gas Fields of East Indies

East Indies

See: Borneo, Celebes, Ceram, Java, Sarawak, Sumatra, New Guinea and Papua.

General Information

Oil seepages were known in the Dutch East Indies as early as 1880, occurring on the east coast of Borneo, in East Java, and in North Sumatra. First recorded production was in 1893.

Fields were opened throughout the region by 1900. In that year East Indies production was 2,253,000 barrels, or 6200 barrels daily. The output rose steadily thereafter, reaching 45,700,000 barrels, or a daily average of 125,000 barrels in 1930.

Most production is from Lower Miocene formations, although some comes from Lower Pliocene formations.

Production information given in *Transactions* of the A.I.M.E. (1934) indicated in terms of barrels, yearly and cumulative production. Figures included the following:

Administration	Bbls. Oil Production in 1933	Total Bbls. Oil Prod. Through 1933
North Borneo	4,277,000	58,214,825
East Borneo	14,252,000	292,302,205
Ceram	262,000	4,141,519
Java	3,492,000	66,767,423
South Sumatra	7,646,000	107,245,102
North Sumatra	6,079,000	91,454,840
Total	36,008,000	620,125,914

Oil and Gas Field of East Indies—Borneo

Koetei Fields (Oil)

Note: Includes Sambodja, Louise, Moeara, Anggana.

Location: East Borneo of Netherland India; Zuider-en Ooster-afdeeling van Borneo; between Balik Papan and Samarinda. **Discovery Data:** Oil seepages caused first drilling; discovery well was Louise 1, completed 1897, by D. B. P. M., at 46 meters; initial production 14 tons; specific gravity, 0.95. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Oil sands of shaly sands and sandstones, two horizons, Pliocene and Miocene, found at 50 and 750 meters, respectively; mainly specific gravity 0.86; shallow sands, 0.95 specific gravity; mainly paraffin base; shallow sands asphalt base. **Extent of Development:** Completed 788 producers of which about 7 gas wells, and about 100 failures from discovery through June, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Louise 384, depth 1602 meters, abandoned in 1930. **Productive Area:** Undetermined. **Production History:** To first July, 1934: 30,030,884 cubic meters; 3624 cubic meters was daily average yield in July, 1934, from 356 producers. Specific gravity of oil is mainly 0.86, a small quantity of 0.95. **Present Activity:** 8 rotary and cable tool rigs operating in July, 1934. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

Louise (Oil)

Location: East Borneo of Netherland India; see Kotei fields. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

Moeara-Anggana (Oil)

Location: Borneo of Netherland India; see Kotei fields. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

Poeloe Boenjoe Island (Prospect)

Location: Off the east coast of Borneo; near Tarakan. **Discovery Data:** Wildcatting about 1923 resulted in finding of gas shows. Production was established in 1929 by the "N. I. A. M." (Nederlandsche Indische Aardolie Maatschappij), in which the Dutch Government has a large share.

Sambodja (Oil)

Location: Borneo of Netherland India; see Kotei fields. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

Tarakan (Oil)

Location: Borneo of Netherland India; Zuider-en Ooster-afdeeling van Borneo; Islands on the east coast of Borneo, 150 kilometers south of the boundary of British North Borneo. **Discovery Data:** Oil seepages and asphalt caused first drilling; discovery well was Pamoesian 2, completed in 1904 by De Bataafsche Petroleum Maatschappij at 108 meters; initial production, 50 tons of heavy asphalt oil; specific gravity, 0.95. **Geology:** Dome and anticline with faulting as minor feature. **Producing Formations:** Soft oil sands, two of them, one Pliocene at 100 meters, the other Miocene at 500 meters; specific gravity, 0.945; mixed base. (a report in 1931 indicated oil was heavy asphaltic grade of 17° to 25° Be. gravity). **Extent of Development:** 440 oil producers and about 100 failures from discovery through June 30, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Pamoesian 189, depth 1579 meters, abandoned in 1930. **Productive Area:** Data not available. **Production History:** To July 1, 1934: 17,350,238 cubic meters; 2429 cubic meters daily average output in June, 1934, when 312 wells were on production; specific gravity, 0.942. **Present Activity:** One rotary string running in July, 1934. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

For the foregoing information on Tarakan field and the Kotei fields, including Sambodja, Louise, Moeara, and Anggana, in Borneo of Netherland, India, The OIL WEEKLY extends thanks to the Shell organization.

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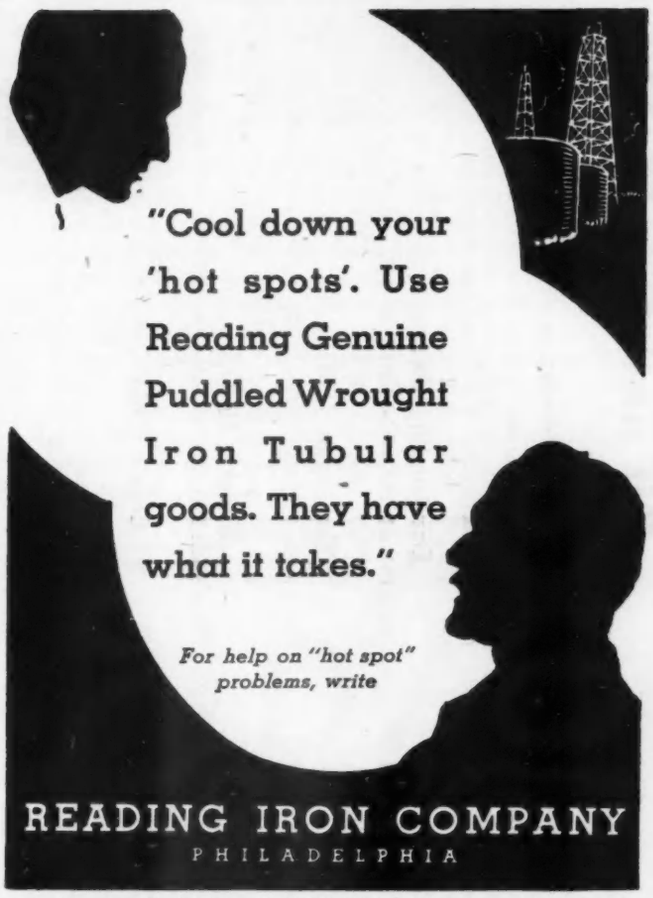

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Oil and Gas Fields of East Indies—Miscellaneous

Celebes Island

General Information

It was reported in 1931 that although the island of Celebes had had no production, there were known to exist oil seepages and asphaltic deposits along the east coastal area and also on the west coast.

Oil seeps were reported to be from Lower Tertiary and Cretaceous formations.

On Boeton island, adjoining Celebes on southeast, asphaltic deposits were reported in upper Triassic formations.

Ceram

Boela (Oil)

Location: Netherlands East Indies; Residentie Ambon; Island of Ceram, off west coast of Dutch New Guinea. **Discovery Data:** Gas and oil seepages caused first drilling; discovery well was De Bataafsche Petroleum Maatschappij's Boela 1, completed 1897; depth 84 meters; initial production 0.4 cubic meters; specific gravity 0.93. **Geology:** Small dome. **Producing Formations:** Soft oil sands and shaly sands, marls; Pliocene-Triassic-unconformity; found at 50-200 meters; specific gravity 0.923; asphalt base. **Extent of Development:** 75 oil wells and 40 failures completed up to June 30, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Belien 1, depth 749 meters, abandoned in 1917. **Productive Area:** Undetermined as of June 30, 1934. **Production History:** Total to 1 of July, 1934, 675,990 cubic meters; 108 cubic meters daily yield as of June 30, 1934, when 31 wells were on production. Specific gravity 0.923. **Present Activity:** 1 cable tool string running in July, 1934. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

For the above data on Boela field, Ceram, Netherland India, The Oil Weekly thanks De Bataafsche Petroleum Maatschappij.

Timor

General Information

It was reported in 1927 that the Timor Petroleum Company had completed a well in Timor for initial production of 10 barrels daily at 295 feet. Timor is an island about midway between the northwest coast of Australia and the southern tip of Java.

Oil and Gas Fields of East Indies—Java

General Information

Producing fields of East Java were within an area 75 miles long, east to west, and 25 miles wide. Within that area, in 1931 there were 37 anticlines with closure, including 25 that were productive in 1924, or had produced some oil.

Dandangilo (Oil)

Location: In Java of Netherland India; included in data on Rembang fields, which see.

Kawengan (Oil)

Location: In Java of Netherland India; included in data on Rembank fields, which see.

Kroeko (Oil)

Location: In Java of Netherland India; included in data on Soerabaja fields, which see.

Ledok (Oil)

Location: In Java of Netherland India; included in data on Rembang fields, which see. **Discovery Data:** De Bataafsche Petroleum Maatschappij's Ledok 1, completed in 1893, at 94 meters. Initial production 4 tons of oil with a specific gravity of 0.854.

Lidah (Oil)

Location: In Java of Netherland India; included in data on Soerabaja fields, which see. **Discovery Data:** De Bataafsche Petroleum Maatschappij's Lidah 1, completed in 1893 at 180 meters for an initial production of 80 tons of oil having a specific gravity of 0.910.

Nglobo (Oil)

Location: In Java of Netherland India; included in data on Rembang fields, which see.

Rembang Fields (Oil)

* Note: Includes Kawengan, Dandangilo, Semanggi, Nglobo, Ledok

Location: Netherlands East Indies; Residentie Rembang; between Soerabaja and Semarang. **Discovery Data:** Oil seepages caused first drilling. Discovery well was De Bataafsche Petroleum Maatschappij's Ledok 1, completed 1893; depth, 94 meters; initial production, 4 tons; specific gravity 0.854. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Two: oil comes from shaly sands and sandy limestones of Pliocene and Miocene ages, found respectively at 50 and 900 meters. Specific gravities, 0.794-0.825, Ledok type oil (Ledok, Nglobo fields); and 0.843-0.869, Kedewan type oil (Kawengan, Dandangilo); all paraffin base. **Extent of Development:** 490 oil wells and 100 failures completed from discovery through June 30, 1934. **Deepest Hole:** DeBataafsche Petroleum Maatschappij's Semanggi 77, depth 1270 meters, abandoned in 1930. **Productive Area:** Data not available. **Production History:** 7,907,769 cubic meters

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EAST INDIES—Java—*Continued*

total to June 30, 1934; 1422 cubic meters daily yield as of June 30, 1934, when 39 wells were producing. The daily yield then consisted of 730 cubic meters (specific gravity 0.843-0.869), and 692 cubic meters (specific gravity 0.794-0.825). **Present Activity:** 1 string at Kawengan. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Semanggi (Oil)

Location: In Java of Netherland India; included in data on Rembang fields, which see.

Soerabaja Fields (Oil)

Note: Includes Lidah and Kroeko

Location: Netherlands East Indies; Residentie Soerabaja; around Soerbaja. **Discovery Data:** Oil seepages caused first drilling; discovery well was De Bataafsche Petroleum Maatschappij's Lidah 1, completed 1893; depth 180 cubic meters, initial production 80 tons; specific gravity 0.910. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Two: oil comes from shaly sands of Pliocene and Miocene ages, found respectively at 50-400 meters. Specific gravity of oil is 0.90, and it has a paraffin base. **Extent of Development:** 700 oil wells and 140 failures completed from discovery through June 30, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Lidah 106; depth 1062 meters, abandoned in 1929. **Production History:** 2,057,902 cubic meters, total through June 30, 1934; 176 cubic meters daily yield as of June 30, 1934, when 414 wells were on production. Average specific gravity, 0.90. **Present Activity:** No activities as of July, 1934. **Principal Lease Holder:** De Bataafsche Petroleum Maatschappij.

For the foregoing data on fields of the Rembang and Soerabaja districts of Java, The OIL WEEKLY extends thanks to the Shell organizations.

Oil and Gas Fields of East Indies—New Guinea

Hohoro Dome (Prospect)

Location: On Vailala River, Papua. **Discovery Data:** Not available. **Geology:** Dome. **Producing Formations:** Gas sands showing oil at intervals from 1017 to 1353 feet. Gas contains 2½ gallons of oil per 1000 cubic feet. **Extent of Development:** Data not available. **Principal Lease Holder:** New Guinea Oil Company.

Matapau (Prospect)

Location: 54 miles from Aitape and in Mandated Territory. Included in data on Sepik District, which see. **Discovery Data:** Shallow well drilled and produced by Mandated Development Company in 1924. Non-commercial.

Sepik District (Prospect)

Location: Two licensed areas are situated some 250 miles by sea west of the small town of Madang and 650 miles by sea west of the town of Rabaul, the seat of government. The town of Aitape lies between the areas. **Discovery Data:** Oil seepages at Matapau a small native village on the New Guinea coast and within the area held under license by Mandated Development Co., Ltd. Mandated Development Co., Ltd., drilled several wells at Matapau between the years 1924 and 1926. The greatest depth attained was 766 feet. From the third well drilled to a depth of 594 feet the maximum temporary production obtained was 50 gallons per day at a depth of 80 feet. Specific gravity at 60°F. 0.865. **Geology:** Refer to the oil exploration work in Papua and New Guinea conducted by the Anglo-Persian Oil Company on behalf of the government of the commonwealth of Australia 1920-1929. **Producing Formations:** No producing formations of any note have yet been determined. It appears three main stratigraphical units exist, viz: Pliocene to Recent, Upper Miocene and Middle Miocene. **Extent of Development:** Seven failures up to September 30, 1934. **Deepest Hole:** At Marienberg, Sepik River, Ormildah Oil Development Co., Ltd., 2705 feet. **Productive Area:** Undetermined. **Production History:** No oil is being produced. **Present Activity:** None as of September, 1934. **Principal Lease Holders:** No oil leases have been applied for. Ormildah Associated Oil Fields, Ltd., and Mandated Development Co., Ltd., each hold an area of 1000 square miles. These companies, in conjunction with Oil Search, Ltd., have carried out extensive geological surveys.

Upoia (Prospect)

Location: On Vailala River. **Discovery Data:** Surface indications noted in 1911. First production (non-commercial) from shallow well in 1913. **Geology:** Broken structures. **Producing Formations:** No horizons producing commercially. Structures too broken to allow development. **Extent of Development:** Up to June, 1929: 10 tests had been drilled. **Deepest Hole:** Data not available. **Productive Area:** Undetermined. **Production History:** Complete data not available. Up to June, 1929 only 2000 gallons of light oil had been recovered. **Present Activity:** No data. **Principal Lease Holders:** No data.

For the foregoing data on Sepik River District New Guinea, The OIL WEEKLY extends thanks to T. Griffiths, administrator with the central administration, Raboul.

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Oil and Gas Fields of East Indies—Sarawak

Sarawak (British Borneo)

Miri (Oil)

Location: State of Sarawak (N. W. Borneo); 300 miles northeast of Kuching; 75 miles southwest of Brunei town; 30 miles southwest of Seria oil field. **Discovery Data:** Oil seepages and surface geology caused first drilling. Discovery well was Anglo-Saxon Petroleum Company's No. 1; completed 1910; depth 865 feet; 13 tons per day initial production; 0.840 gravity oil. **Geology:** Asymmetrical anticline with faulting and thrust faults as important features. **Producing Formations:** Six oil producing sands which are moderately hard sandstones of Miocene age. Sands encountered at depths varying between 340-1995 feet. Gravity of oils varies between .791 and .947 for different sands. A report in 1931 stated oil varied from 18° to 39° Beaume gravity. Paraffin, asphalt and mixed base oils are produced. **Extent of Development:** 572 producers and 85 failures completed from discovery through June 30, 1934. **Deepest Hole:** Well No. 498 Sarawak Oilfields, Ltd., 6180 feet, abandoned 1930, in deep shale horizon, no production. **Production History:** 7,751,205 English tons to end of 1933; 144,464 English tons in first six months of 1934; 765 English tons daily average yield as of June 30, 1934, when 412 wells were on production. Gravity varies between 0.791 and 0.947 for the different sands. **Present Activity:** One cable tool outfit running on repair work. **Principal Lease Holders:** Sarawak Oilfields, Ltd.

Seria (Oil)

Location: State of Brunei (N. W. Borneo); 30 miles northeast of Miri oilfield. **Discovery Data:** Gas seepages on the coast and geophysics caused first drilling. British Malayan Petroleum Company's Seria No. 1, completed in 1929 at 978 feet, was discovery well; initial production, 6 tons oil per day; gravity 0.9456 at 15°C. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Oil sand consists of soft clays and loose sands alternating rapidly and belonging to the Tertiary. Production found at from 850 feet-1700 feet; gravity 0.94; asphalt base deep level from 5112-5280 feet in one well only; gravity 0.85; paraffin base. **Extent of Development:** 33 producers and six failures completed from discovery through June 30, 1934. **Deepest Hole:** Seria 40, drilled by British Malayan Petroleum Co., Ltd. to 5259 feet. Initial production 250,000 cubic meters gas, 10 cubic meters oil. Shut in. **Production History:** 478,218 English tons from discovery to end of 1933. 168,454 English tons in first six months of 1934. 1,267 English tons daily as of June 30, 1934, when 24 wells were on production. Gravity of oil is 0.94. **Present Activity:** 1 regular rotary. **Principal Lease Holders:** British Malayan Petroleum Company, Ltd.

Presentation of the foregoing data on Miri and Seria of Sarawak fields has been made possible through the courteous cooperation of various Shell interests.

East Indies

This map, showing oil fields of the East Indies and part of India, is taken from a copyrighted map of International Map Company, New York.

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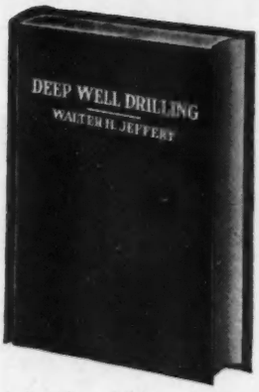

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Oil and Gas Fields of East Indies—Sumatra

General Information

Production in South Sumatra has been largely from the district of Palembang, with smaller amounts from Djambi.

It was reported in *Transactions* of the A.I.M.E. (1931) that in the district of Palembang there were 45 anticlines with closure, including 27 that were productive in 1924.

In North Sumatra there were reported at the same time four main producing structures, near the coast.

Aroebaai (Oil)

Location: Sumatra of Netherland India; see "Poeloe Pandjang" for other data; field is on island off north coast of Sumatra. **Production History:** 115,938 Kgton in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Babat (Oil)

Location: South Sumatra of Netherland India; between Palembang and Djambi; see "Midden Palembang" fields. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Babat 272; depth, 1997 meters; abandoned in 1931. **Production History:** Produced 20,113 Kgton in 1933.

Badjoebang (Oil)

Location: One of the Djambi fields 30 kilometers southwest of Djambi town; see "Djambi," South Sumatra. **Discovery Data:** De Nederlandsch-Indische Aardolie Maatschappij's Badjoeing 2 was discovery well; completion date, 1929; depth, 877 meters; initial production, 23 tons; specific gravity, 0.784.

Batoe Kras (Oil)

Location: South Sumatra of Netherland India; Residentie Palembang, 150 kilometers southwest of Palembang; see "Zuid Palembang" fields. **Discovery Data:** De Bataafsche Petroleum Maatschappij completed Batoe Kras 96, discovery well, in 1904; depth, 94 meters; initial production, 60 cubic meters; specific gravity, 0,832.

Benakat (Oil)

Location: In residency of Palembang. **Discovery Data:** Nederlandsche Koloniale Petroleum Maatschappij's well No. 2, completed November, 1932, at about 1500 feet. **Extent of Development:** Limited development. **Deepest Hole:** 4500 feet. **Productive Area:** Small. **Present Activity:** One well drilling. **Principal Lease Holder:** Nederlandsche Koloniale Petroleum Maatschappij, a subsidiary of Standard Oil Company (New Jersey).

Djambi Fields (Oil)

Location: Netherlands East Indies; Residentie Djambi; about 30 kilometers southwest of Djambi (town), South Sumatra; Djambi fields include Badjoeing and Tempino. **Discovery Data:** Oil seepages caused first drilling; discovery well was De Nederlandsch-Indische Aardolie Maatschappij's Badjoebang 2, completed 1929; depth, 877 meters; initial production, 23 tons; specific gravity, 0.784. **Geology:** Anticline with faulting as minor feature. **Production Formations:** Two; oil comes from shale sands of Pliocene and Miocene ages, found respectively at 800 and 900 meters; specific gravity of oil is 0.784; it has a mixed base. **Extent of Development:** 19 oil producers, 1 gas well, and 5 failures completed from discovery through June 30, 1934. **Deepest Hole:** De Nederlandsch-Indische Aardolie Maatschappij's Badjoebang 9; depth 1486 meters; abandoned in 1931. (A report in 1933 stated a test in Djambi field was deepest of East Indies, having been abandoned March, 1930, at 2332 meters, or 7650 feet). **Productive Area:** Data not available. **Production History:** 1,429,369 cubic meters total up to June 30, 1934; 1080 cubic meters was daily average as of June 30, 1934, when 17 wells were on production; specific gravity, 0.784. **Present Activity:** 1 string at Badjoebang. **Principal Lease Holders:** De Nederlandsch-Indische Aardolie Maatschappij.

Kloeang (Oil)

Location: South Sumatra of Netherland India; between Palembang and Djambi, see "Midden Palembang" fields. **Producing Formations:** Yield 0.81 specific gravity, paraffin base oil. **Production History:** Produced 22,767 kgtons in 1933. **Present Activity:** 1 rotary rig in August, 1934. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Limau (Oil)

Location: South Sumatra of Netherland India; 150 kilometers southwest of Palembang; see "Zuid-Palembang" fields. **Producing Formations:** 1650 meters; specific gravity, 0.88; paraffin base. **Production History:** Produced 20,723 kgtons in 1933.

Midden-Palembang Fields (Oil)

NOTE: Include Kloeang, Babat and Soeban Boeroeng.

Location: Netherlands East Indies; Residentie Palembang; between Palembang and Djambi (South Sumatra). **Discovery Data:** Oil seepages caused first drilling; discovery well was De Bataafsche Petroleum Maatschappij's Koekoei 1, completed 1897; depth, 59 meters; initial production, 18 tons; specific gravity, 0.81. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Two; oil comes from shaly sands and sandstones of Pliocene and Miocene ages, found respectively at 40 and 800 meters; oil is mainly 0.81 specific gravity, paraffin base (Kloeang); partly 0.80, asphalt base. **Extent of Development:** 404 oil producers and 48 failures completed from discovery through June 30, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Babat 272; depth, 1997 meters; abandoned in 1931. **Productive Area:** Data not available. **Production History:** 4,409,324 cubic meters total to June 30, 1934, when daily average of field was 1620 cubic meters from 212 wells producing oil with specific gravity of 0.80-0.81. **Present Activity:** 1 string rotary at Kloeang. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

North Sumatra Fields (Oil)

NOTE: Include Serang, Djaj, Rantau, Perlak and some very small old fields.

Location: North Sumatra of Netherland India; Gouvernement Oostkust van Sumatra; between Medan and Kota Radja. **Discovery Data:** Gas and oil seepages caused first drilling; discovery well was De Bataafsche Petroleum Maatschappij's Telaga Said 1, completed in 1893; depth, 121 meters; initial production, 36 tons; specific gravity, 0.787. **Geology:** Anticlines with faulting as minor feature. **Producing Formations:** Shaly sands and sandstones of Pliocene and Miocene; first at 100 meters; second at 1250 meters; specific gravities, 0.752 and 0.789, respectively; mixed base oil. **Extent of Development:** 690 oil producers and about 240 failures completed from discovery through June 30, 1934. **Deep-**

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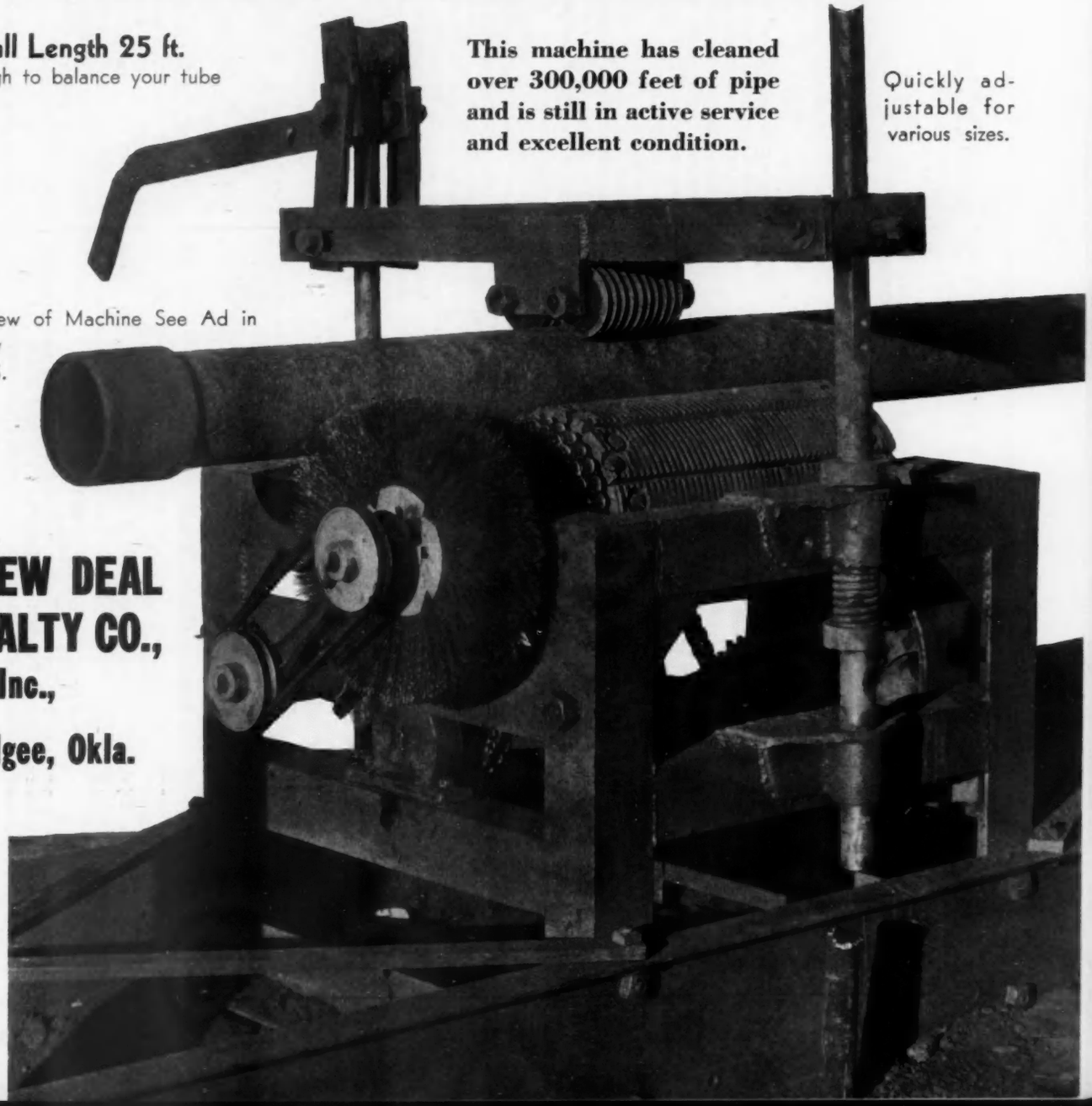

For Full View of Machine See Ad in Oil Weekly Jan. 7, 1935.

The NEW DEAL SPECIALTY CO., Inc.,

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EAST INDIES—Sumatra—*Continued*

est Hole: De Bataafsche Petroleum Maatschappij's Serang Djaja 97; depth, 2036 meters; abandoned in 1929. **Productive Area:** Data not available. **Production History:** 13,457,000 cubic meters to June 30, 1934; about 3100 cubic meters daily average production from 90 wells as of June 30, 1934; specific gravities, 0.752-0.789. **Present Activity:** 1 string rotary tools as of July 31, 1934. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Pendopo (Oil)

See Talang Akar-Pendopo.

Perlak (Oil)

Location: North Sumatra of Netherland India; between Medan and Kota Radja; see "North Sumatra" fields. **Production History:** Produced 78,555 kgtons in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Poeloe Pandjang (Oil)

Location: Netherlands East Indies; Gouvernement Oostkust van Sumatra; island on the coast of North Sumatra between Medan and Kota Radja; field also known as Aroebaai, which is really a separate pool. **Discovery Data:** Gas seepages caused first drilling; discovery well was De Nederlandsch-Indische Aarodlie Maatschappij's Poeloe Pandjang 2; completed 1928; depth, 557 meters (1827 feet); initial production, 25 tons; specific gravity, 0.753. **Geology:** Anticline with faulting as minor feature. **Producing Formations:** Oil comes from shaly sands of Pliocene and Miocene ages, found respectively at 500 and 650 meters; specific gravity of the oil is 0.753; it has a mixed base. **Extent of Development:** 21 oil producers, 1 gas well and 1 failure completed from discovery through June 30, 1934. **Deepest Hole:** De Nederlandsch-Indische Aardolie Maatschappij's Well 23; depth, 642 meters; completed in 1934; initial production, 157 cubic meters. **Production Area:** Data not available. **Production History:** 478,475 cubic meters up to June 30, 1934, when daily yields of field was 714 cubic meters, coming from 15 wells producing oil with a specific gravity of 0.753; Poeloe Pandjang proper credited with a production of 112,060 kgtons in 1933. **Present Activity:** No activities as of August, 1934. **Principal Lease Holders:** De Nederlandsch-Indische Aardolie Maatschappij.

Rantau (Oil)

Location: North Sumatra of Netherland India; between Medan and Kota Radja; see "North Sumatra" fields. **Production History:** Produced 437,487 kgtons in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Serang Djaja (Oil)

Location: North Sumatra of Netherland India; between Medan and Kota Radja; see "North Sumatra" fields. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Serang Djaja 97, abandoned in 1929, at 2036 meters. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Soeban Boeroeng (Oil)

Location: South Sumatra of Netherland India; between Palembang and Djambi; see "Midden Palembang" fields. **Production History:** Produced 23,626 kgtons in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Soeban Djerigi (Oil)

Location: South Sumatra of Netherland India; 150 kilometers southwest of Palembang, see "Zuid Palembang" fields. **Producing Formations:** Yield asphalt base oil with specific gravity of 0.76 to 0.80. **Production History:** Produced 176,827 kgtons in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Soengei Taham (Oil)

Location: South Sumatra of Netherland India; near Moeara Enim, 150 kilometers southwest of Palembang; see "Zuid Palembang" fields.

Talang Akar-Pendopo (Oil)

Location: District of Palembang. **Discovery Data:** N. K. P. M.'s (see below) well No. 2, completed in 1922 at 2000 feet. **Geology:** Anticline. **Extent of Development:** Extensively developed. **Deepest Hole:** About 3500 feet. **Productive Area:** Data not available. **Present Activity:** Two wells drilling. **Principal Lease Holder:** Nederlandsche Koloniale Petroleum Maatschappij, a subsidiary of Standard Oil Co. (N. J.).

Tandjoeng Loentar (Oil)

Location: South Sumatra of Netherland India; 150 kilometers southwest of Palembang; see "Zuid Palembang" fields. **Production History:** Produced 49,091 kgtons in 1933. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

Tempino (Oil)

Location: One of the Djambi fields, 30 kilometers southwest of Djambi town, see "Djambi," South Sumatra. **Principal Lease Holders:** De Nederlandsch Indische Aardolie Maatschappij.

Zuid-Palembang Fields (Oil)

NOTE: Include Limau, Soeban Djerigi, Tandjoeng Loentar, Soengei Taham, Batoe Kras.

Location: Netherlands East Indies; Residentie Palembang; 150 kilometers southwest of Palembang (South Sumatra) near Moeara Enim. **Discovery Data:** Oil seepages caused first drilling; discovery well was De Bataafsche Petroleum Maatschappij's Batoe Kras 96; completed 1904; depth, 94 meters; initial production, 60 cubic meters; specific gravity, 0.832. **Geology:** Anticlines with faulting as minor feature. **Producing Formations:** Oil comes from shaly sands and sandstones of Pliocene, Miocene, Palaeogene ages, found at 70-800 meters, Limau at 1650 meters; specific gravities, 0.76-0.80, asphalt base (S. Djerigi, etc.); 0.88 paraffin base, (Limau). **Extent of Development:** 357 oil producers, 16 gas wells, and 47 failures completed from discovery through June 30, 1934. **Deepest Hole:** De Bataafsche Petroleum Maatschappij's Soengei Taham 441, depth, 2246 meters; abandoned in 1930. **Productive Area:** Data not available. **Production History:** 7,406,812 cubic meters up to June 30, 1934, when daily average production of field was 858 cubic meters coming from 110 wells producing oil with specific gravities ranging from 0.76-0.88. **Present Activity:** 3 strings (1 at South Djerigi, 2 at Limau) in August, 1934. **Principal Lease Holders:** De Bataafsche Petroleum Maatschappij.

The foregoing data on fields of Sumatra is mainly a result of co-operation received from the head of the department of mines, Hoofdkantoor Van Den Mijnbouw, Bandoeng, Java, John L. Cobbs, Jr., of New York, U. S. A., the Royal Dutch Shell organization at the Hague, and foreign subsidiaries of the Shell group.

Oil and Gas Fields of Australasia—Australia

General Comment

Frederick G. Clapp, of New York, geologist, has expressed the opinion there are practically no prospects for commercial oil production in Western Australia, South Australia, Northern Territory, and Tasmania; that New South Wales may have some possibilities; that certain areas in Queensland seemed to be worthy of consideration.

In a paper presented in February, 1935, at the New York meeting of the American Petroleum Institute of Mining and Metallurgical Engineers, W. G. Woolnough, Canberra, F.C.T., Australia, said: "I still maintain as strongly as ever that the prospects of obtaining flow oil in Queensland, Western Australia, and Victoria are good, and that really scientific methods must ultimately succeed."

Drilling is considered likely during 1935 in the Mandated Territory of New Guinea, where geological work has been in progress. The idea is still being entertained of attempting commercial extraction of oil from oil shales of New South Wales and Tasmania.

Lakes Entrance (Oil)

Location: State of Victoria, Parish of Colquhoun, County of Tambo, Mineral District, Gippsland, 150 miles east of Melbourne. **Discovery Data:** No surface indications; discovery well was Lake Bunga, No. 1, drilled by Lakes Entrance Development Co. Completed 1924; depth, 1120 feet; 1000 cubic feet methane gas per day; trace of oil; gravity .960. **Geology:** Terrace formation. Dip is southward at a low angle. **Producing Formations:** In strata of Tertiary age (Oligocene?) a layer of glauconitic sandstone resting in part on granite or metamorphic bedrock. On the contact of the glauconite with the bedrock artesian water occurs. The oil has not migrated. Amount present on analysis has been proved to be less than 1%. Providing the bores do not penetrate the glauconite an emulsion of oil and water could be pumped. The amount ranges up to 1 barrel per day. The oil is of asphaltic base. The oil is found at from 1100 feet to 1472 feet. **Extent of Development:** 32 wells which produce a small amount of oil, 5 wells which produce a small amount of gas, and 15 failures, drilled from discovery through June 30, 1934. **Deepest Hole:** 1472 feet, Kalimna 1, drilled by Kalimna Oil Co. Completed and abandoned 1931. Metamorphic formation was the last penetrated. **Productive Area:** About 2 square miles as of July, 1934. Field is not defined. **Production History:** 79,000 gallons total cumulative through end of 1933; 1,000 gallons produced in first 6 months of 1934; about 20 gallons daily average yield as of June 30, 1934, when 2 wells were on production. Gravity of oil is 0.960. **Present Activity:** 2 rigs working; cable tools as of August, 1934. **Principal Lease Holders:** South Australian Oil Wells Co., and Oil Search, Ltd.

Longreach (Prospect)

Location: Queensland state, Mitchell district, Longreach municipality. **Discovery Data:** Paraffin showing in water well caused first drilling. **Geology:** Monocline-unconformity (?). **Producing Formations:** Oil (paraffin wax)—non commercial thus far, might be produced from a hard sandstone of Triassic age found at 3,300 feet. 0.841 to 0.923 is gravity of samples. Paraffin base. **Extent of Development:** One failure drilled up to August, 1934. **Deepest Hole:** Longreach Town 2, drilled by the municipal council to below 2300 feet in 1925. It ceased drilling in Lower Mesozoic sandstone and obtained a few score gallons of paraffin wax. **Productive Area:** Unproven. **Production History:** A few score gallons to August, 1934. **Present Activity:** None as of August, 1934. **Principal Lease Holders:** Oil Search, Ltd.

Portland, Victoria Areas (Prospect)

Location: State of Victoria, County of Normanby, Parishes of Tarragal, Mouzie, Kentbruck, Wanwin Gorae, Bolwarra Portland. Nearest point 5 miles from deep water port of Portland. **Discovery Data:** Since settlement began just 100 years ago, the country has been noted for oil indications, such as seepages, gas blows, asphaltum, petroliferous limestones, sulphur water, paraffin wax, and oil showings in domestic water bores. It is considered that the oil areas run out to sea, as large quantities of oil and bitumen have been washing ashore since the country was first known. Oil showings have been encountered in shallow scout bores at 138 to 150 feet. Paraffin base. **Geology:** Monocline against igneous barrier. **Producing Formations:** It is considered that the oil showings at shallow depth are from the Miocene which outcrops in places. Geologic opinion is that production, if any, might come from the Lower Cretaceous. Analysis of oil from seepages shows paraffin base. Impregnated limestones also show paraffin. **Extent of Development:** No drilling for production undertaken up to August, 1934. **Deepest Hole:** Deepest hole, a water well, 2,225 feet, put down in 1931 and abandoned in what have been presumed to be Oligocene clays and sands reported to be showing oil at the time. **Productive Area:** None as of August, 1934. **Production History:** No oil produced to date. **Present Activity:** One rotary rig being erected (late, 1934). **Principal Lease Holders:** Western Petroleum, N. L., 54,000 acres with rights to bore for oil and gas held from landowners on royalty basis. C. O. Shave, holder of boring rights on over 15,000 acres.

Roma (Prospect)

Location: State of Queensland, Maranoa district, Roma municipality. **Discovery Data:** Gas showing in water wells caused first drilling. Roma Oil Corporation completed a well in 1928 which produced 1.2 pints of gasoline per 1000 cubic feet of gas. Local history tells of a large gas well which burned early in 20th century, and was never controlled or completed. Well was around 3900 feet deep and was drilled as a water well. **Geology:** Monocline-unconformity. **Producing Formations:** Lean Gas—non-commercial, comes from a hard sandstone of Triassic (?) age, found above 4,000 feet, Gravity: 0.773 to 0.797. Paraffin base. **Extent of Development:** Two gas wells and 25 failures drilled up to June 30, 1934. **Deepest Hole:** A. R. O. 19, drilled by Australian Roma Oil, Ltd., to 4,958 feet and completed December 12, 1933. It is located in Wallumbilla Township, 20 miles east of discovery well. Hard sandstone—Permo-Carboniferous (?) was the last formation penetrated. Dry hole. **Productive Area:** None commercially in August, 1934. **Production History:** 20,000 gallons petrol total produced to end of 1933. **Present Activity:** Two rotary rigs running in August, 1934. **Principal Lease Holders:** Australian Roma Oil, Ltd., Drillers, Ltd., Roma Oil Corporation, Ltd., Builders, Ltd.

Warooby Creek (Gas)

Location: State of Queensland, 8 miles east of Roma, 3 miles west of Blythdale, Parish of Beaufort. **Discovery Data:** Drillers, Limited drilled No. 1 to 3764 feet

AUSTRALASIA—Australia—*Continued*

in August, 1934, tests indicating a gas well capable of yielding ½ million cubic feet of wet gas per day. **Geology:** Closed structure with 16 feet of closure, depth to bedrock approximately 3900 feet. **Producing Formations:** It is believed future production, if any, will come from Permo-Carboniferous sediments of the Bowen basin. **Extent of Development:** One well up to August, 1934. **Deepest Hole:** See "Discovery Data". **Productive Area:** None commercial. **Production History:** None. **Present Activity:** None in August, 1934. **Principal Lease Holders:** Drillers, Limited.

For the foregoing data on Australia, The OIL WEEKLY is indebted to the Prime Minister's department and to the especial co-operation of the following individuals: W. Baragwanath, director of the geological survey of the mines department of Victoria; Dale Condit of Oil Search, Ltd., F. E. Levy of Hamilton, Victoria, A. A. Staines of the department of mines of Queensland, and Dr. W. G. Woolnough, geological advisor to the commonwealth government.

Oil and Gas Fields of Australasia-New Zealand

General Comment

Frederick G. Clapp, geologist, New York, in the *Transactions* of the A. I. M. E. (1925), expressed the opinion that the South Island of New Zealand probably offered no possibilities for commercial oil production, but that the North Island was more promising, containing two large areas of sedimentary rocks. Previous production from the western side, Taranaki, was mentioned. On the eastern coast, it was stated, conditions appeared promising, the region embodying an area 40 miles long and 50 miles wide in which intense faulting occurred.

Taranaki (Oil)

Location: At New Plymouth, Taranaki provincial district, in the western part of the North Island. **Discovery Data:** Seepage observed in sea before advent of Europeans. Drilling began in 1865 and shallow production was obtained by wells drilled from then to 1868. Semi-commercial oil was found at from 2100 to 2300 feet in wells drilled between 1906 to 1912. Later production was obtained at 3100 feet. **Geology:** Production comes from a zone surrounding, and within a mile of an andesite intrusion which rises 500 feet above the Tertiary land surface. Taranaki oil comes from around the above type of plug and arrested, or locally reversed dips. **Producing Formations:** Lenticular sands at from 2100 to 3300 feet. **Extent of Development:** Data not available. **Deepest Hole:** No data. **Productive Area:** No data. **Production History:** More than 70,000 barrels produced to end of 1931. **Present Activity:** Data not available. **Principal Lease Holders:** Taranaki Petroleum Company; Moturoa Oil Company; Blenheim Company.

For the above data on Taranaki field, New Zealand, The OIL WEEKLY is indebted primarily to V. Duff of Taranaki, New Plymouth.

Bibliography used was a report, dated October 29, 1934, of the chairman and board of directors of Moturoa Oil Fields, Ltd., and "Taranaki Oil Fields, New Zealand," by Frederick G. Clapp, Bull. A.A.P.G., Vol. 16, No. 8.

Oil and Gas Fields of Australasia-Tasmania

Remarks: A. B. Bryan, assistant to secretary of the department of mines at Hobart, quotes Mr. P. B. Nye, government geologist, as stating September 20, 1934: "There are no oil or gas fields in this state. If you should desire any general information, you will find it in Economic Geology, Volume XXVII, Numbers 4 and 5, of 1932, in articles by E. C. Andrews."

Exploratory Drilling to Characterize International Oil Industry in 1935-40

(*Continued from page* 23)

posed by those with authority to tax is the seed from which a dearth of oil eventually will mature. Rumanian producers realize it. That is why the nation is in the midst of the most serious exploratory campaign it has witnessed in several years. And yet, that campaign has brought forth but two promising areas, neither of which is today a definite quantity.

Some people have labelled Steaua Romana's discovery at Buscani a major one. Other students of petroleum reserves state more drilling must be done before such a classification can be put on the area. The Calinesti discovery may be an extension of Moreni field or it may be a new field. At any rate, it enhances the ultimate potential recovery estimate of Tintea-Moreni-Gura-Ocnitei group, which group has produced 61 percent of the 620,000,000 barrels recovered in Rumania through 1934.

If Rumania's government eases the burden on the producer, production may be held to a reasonable figure, a situation which would work to the benefit of all world market competitors. If the producer is forced to continue to depend upon quantity output for a livelihood, the ultimate result will be exhaustion of reserves and the removal of one serious competitor from the world market. As a matter of fact, the strain is already beginning to tell in some of Rumania's fields.

India, which means primarily Burma, may be passed over with the observation that those who have studied the situation there claim the country will be able to maintain its present rate of about 8,800,000 barrels annually for several years to come due to ideal, sensible operating policies and practices.

Conversely, India has several years been spoken of as the most thoroughly geologized and prospected country in the world. In the matter of new reserves it has practically nothing to look forward to. This is fact. Ability to maintain its present production rate is assumption.

Normally, a falling off in India's output would call on East Indies fields to fill the gap. Recent exploratory efforts in the East Indies do not leave one with the impression that region could produce 8,000,000 barrels more than its present annual yield of 41,800,000 barrels without serious detrimental results. As a point of consideration, water encroachment has been evidenced in a number of East Indian fields already. That, in itself, is reason for continuation of the wildcatting campaign now under way in the East Indies and Australasia.

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Bureau of Mines January Statistics Less Favorable

THE statistics of the petroleum industry during January, as reflected in the Bureau of Mines' latest monthly report, were somewhat less favorable than in preceding months, but at the same time fairly satisfactory.

The stocks of both gasoline and crude oil showed increases, with some excesses involved in production at refineries and wells. The price situation in January compared unfavorably with both December and a year previously, and the demand factor was not as favorable as in preceding months.

Gasoline Demand

Domestic demand for motor fuel in January was 28,062,000 barrels, an average of 905,000 barrels daily. Compared with a year earlier, that represented a decline of five percent. The demand in January, 1934, was exceptional however, exceeding anticipations about 2,000,000 barrels, it is pointed out. The actual consumption in January, 1935, is estimated in the government report to have been about two percent higher than that in January, 1934.

The stocks of finished gasoline increased 5,735,000 barrels in January, 1935, while unfinished gasoline stocks rose 325,000 barrels. The combined total gain for the month was thus 6,060,000 barrels. Such increase was 890,000 barrels more than was authorized in the oil code administration's allocations.

Continued heavy withdrawals from fuel oil stocks represented one of the outstanding developments in the industry during January. It was pointed out that the trends of these declines indicate that increasingly heavier withdrawals have been made from gas oil and distillates in contrast to the withdrawals from residual fuel oil stocks, and that the withdrawals east of California have been getting heavier, but those in California are becoming lighter.

Price Index

The price index for petroleum products for January, 1935, was indicated by the Bureau of Labor Statistics to be 48.8, compared with 49.8 in December, 1934, and 51.1 in January, 1934.

Refinery data of the report were compiled from refineries with aggregate daily recorded crude oil capacity of 3,541,000 barrels. Those refineries operated during January, 1935, at 69 percent of their capacity, given above, compared with a ratio of 70 percent in December, 1934.

Crude Production

United States crude oil production in January, 1935, totaled 78,715,000 barrels, or averaged 2,539,200 barrels daily, according to the report. The output was about 120,000 barrels per day higher than in December, 1934.

The higher production reflected the increase of 153,300 barrels in the federal allowable effective December 17. The total of 2,539,200 barrels daily was, however, 78,900 barrels above the allowable. Texas showed the largest production increase in January, although most of the states recorded gains.

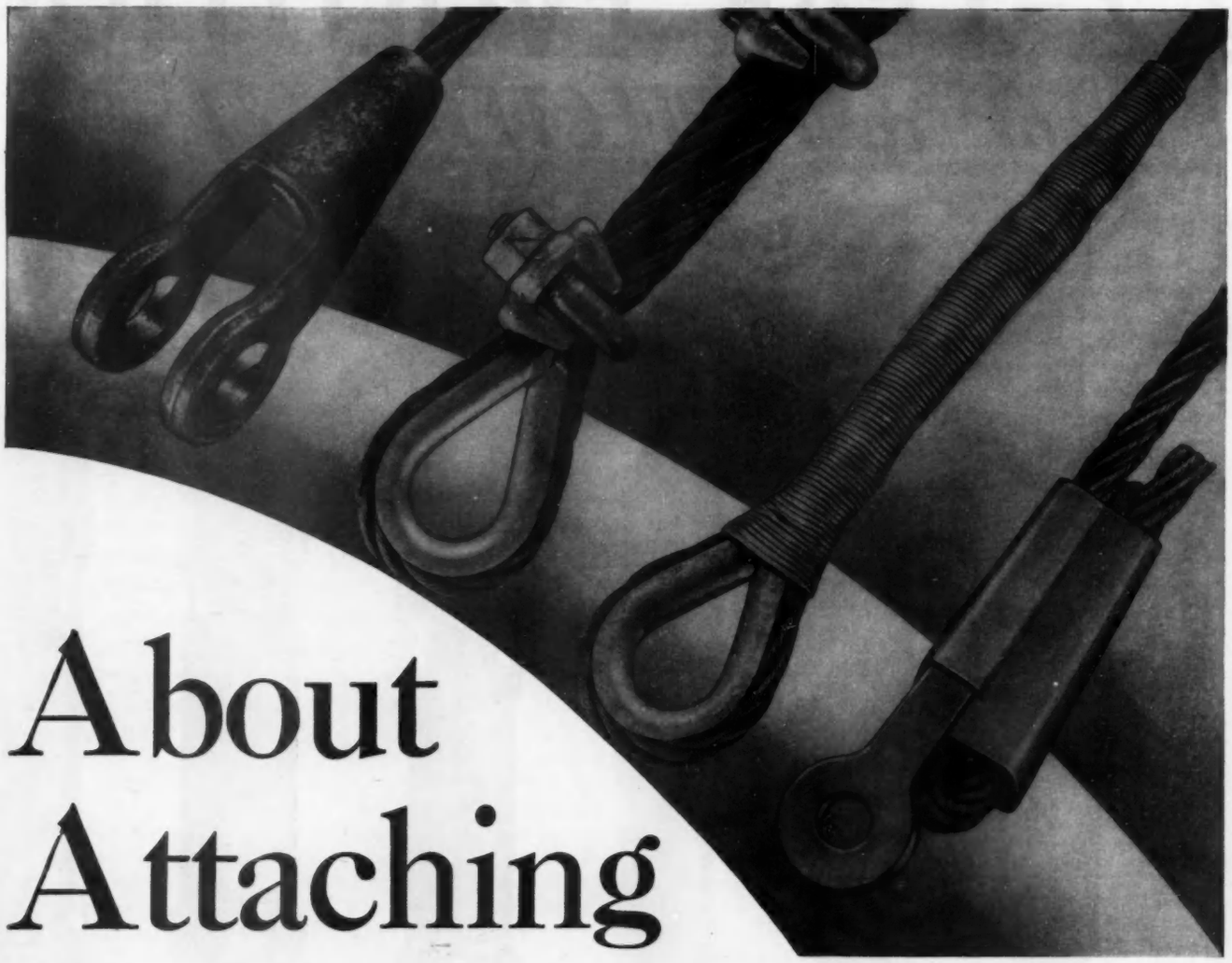
Runs of crude oil to stills were 37,000 barrels per day lower in January than in December. That decrease and the higher crude production resulted in addition to crude stocks. The crude stocks had been commonly decreasing in recent months. During January the crude oil stocks increased to 338,174 000 barrels from 337,254,000 barrels. The latter figure represents the revised total of stocks indicated to have been on hand December 31, 1934.

Supply and Demand of All Oils

Table from Bureau of Mines January Report on Petroleum
(Thousands of barrels of 42 gallons)

	January, 1935	December, 1934[1]	January, 1934
New Supply:			
Domestic production:			
Crude petroleum	78,715	75,010	71,976
Daily average	2,539	2,420	2,322
Natural gasoline	3,286	3,236	3,024
Benzol[2]	147	123	130
Total production	82,148	78,369	75,130
Daily average	2,650	2,528	2,424
Imports:[3]			
Crude petroleum:			
Bonded warehouses	549	636	203
For domestic use	1,462	2,563	2,597
Refined products:			
Bonded warehouses	972	1,037	1,072
For domestic use	1,101	638	172
Total new supply, all oils	86,232	83,243	79,174
Daily average	2,782	2,685	2,554
Decrease in stocks, all oils	[4]1,231	5,864	4,478
Demand:			
Total demand	85,001	89,107	83,652
Daily average	2,742	2,874	2,698
Exports:			
Crude petroleum	2,369	2,432	2,288
Refined products	6,411	6,204	5,281
Domestic demand:			
Motor fuel	28,062	30,486	29,416
Kerosene	4,299	4,761	4,245
Gas oil and fuel oil	33,751	33,602	32,712
Lubricants	1,557	1,394	1,440
Wax	69	60	89
Coke	702	675	1,056
Asphalt	592	574	402
Road oil	156	137	165
Still gas (production)	3,808	3,790	3,457
Miscellaneous	203	175	41
Losses and crude used as fuel	3,022	4,817	3,060
Total domestic demand	76,221	80,471	76,083
Daily average	2,459	2,596	2,454
Stocks:			
Crude petroleum	338,174	337,254	353,642
Natural gasoline	4,530	3,740 [5]4,216	3,906
Refined products	222,675	223,352 [5]222,678	240,187
Total, all oils	565,379	564,346 [5]564,148	597,735
Days' supply	206	196	222

[1]Revised. [2]From Coal Division. [3]Imports of crude as reported to Bureau of Mines; imports of refined products from Bureau of Foreign and Domestic Commerce. [4]Increase. [5]New basis.



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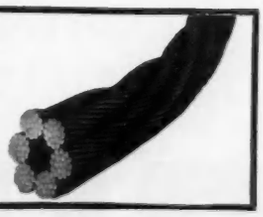

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MARKETS and STATISTICS

Gasoline Prices Rise to Highest Levels of Year

THE markets for refined oils last week exhibited pronounced strength. Prices on gasoline at Mid-Continent refineries have improved materially. Late in the week the quotations were a quarter cent higher for all grades than they had been a week earlier.

There had not arisen in the meantime any adverse circumstances to arrest the upward movement, and it appeared that further price gains were in prospect.

The gasoline market strength of the past two weeks has greatly cheered crude oil producers, who have begun to entertain hopes of higher crude prices. But it appears obvious that materialization of such hopes is not likely to occur until product prices make further gains and become stabilized at substantially higher levels than those now prevailing.

The levels to which Mid-Continent gasoline prices had risen last week were the highest for this year. They were above the average of last year, and had been exceeded in 1934 only for short periods in May and November, when surplus gasoline buying in East Texas under oil code plans artificially stimulated the markets.

Current market strength is evidently based primarily on tighter law enforcement in East Texas, following reinstatement of federal oil shipping control. The new federal tender board there has continued functioning effectively, despite unsuccessful attempts to enjoin the agency in the courts. East Texas hot oil output is indicated to have declined further last week, the average for the week having been estimated between 20,000 and 30,000 barrels daily. Only about 20 refineries are now operating in the district.

Another influence that is apparently tending to strengthen the gasoline market is the anticipation prices will rise as consumption enters upon the usual spring increase. A bullish attitude seems to prevail in this connection, despite the fact refinery output of gasoline lately has exceeded government allocations, which took into account the usual increase of demand in the spring.

Having risen a quarter-cent within a week, gasoline prices in the Mid-Continent at the middle of last week were the highest since November, 1934. At that time the original federal tender board had just begun operating and was achieving remarkable results in cutting down the volume of hot oil; and in addition, there was being contemplated early in the month a resumption of previously discontinued surplus gasoline buying by major companies from East Texas refiners under oil code approval. Early in November the price for third grade gasoline in East Texas rose to four cents a gallon, compared with a price of 3¾ cents prevailing last week. But on abandonment of the surplus gasoline buying program at that time, the price slipped back to 3¾ cents, which average continued to prevail on into December.

While tenderable U. S. motor gasoline of the third grade (below 62 octane) was averaging the 3¾-cent price at East Texas refineries at the middle of last week, the corresponding spot tank car price on middle or standard grade (62-67 octane) was 4¼ cents a gallon, and on premium grade, 68-70 octane, 4¾ cents. Exactly the same prices were prevailing in North Texas and Group Three (Oklahoma) area, except that the middle grade in those districts was an eighth-cent higher, or 4⅜ cents. For all grades and districts, the new prices were one quarter-cent higher than those in effect a week before.

East Texas Tank Car Shipments

Week Ending March 10, 1935

Products—	No. Cars	Estimated Gallons
Gasoline	422	3,440,891
Fuel Oil	222	2,137,956
Casinghead Gasoline	133	1,130,234
Kerosene	28	228,885
Distillate	24	194,895
Gas Oil	15	121,003
Residuum	3	26,135
Total	847	7,279,999
Total prev. week	1,538	13,078,107
Intrastate	313	
Interstate	294	
Coastwise	240	
Total	847	
Tendered	809	
Without Tenders	38*	
Total	847	

* Fuel oil moved under Federal Court Injunction.

East Texas Hot Oil Shipments Down

Tyler.—Volume of illegal crude production in the East Texas field ranged from 15,000 to 20,000 barrels daily the past week, according to estimates by qualified observers. Sales of refined products derived from this crude are restricted to tank truck shipments, as requirements imposed by the state and federal tender boards have shut off rail traffic. Records of the Railroad Commission showed only 20 refineries operating towards the close of last week, including 12 that have approved tenders, while eight plants are ignoring the tender boards and disposing of their products through tank truck sales.

Tank car shipments of petroleum products from the district dropped from 1538 to 847 cars during the week ending March 10. The latter period covers the first week that the restored federal tender board has served. The decline was anticipated as shippers had been successful in procuring state approved tenders on interstate consignments that will not be approved by the federal board. An analysis of rail shipments for the past week reveals that gasoline, fuel oil and casinghead gasoline were the only products moved in important quantities.

Mid-Continent Market Gains More Strength

THE Mid-Continent refinery market showed further strength as the week progressed and at the week end third-grade U. S. motor fuel was strong at 3¾ cents per gallon on the spot

market. The return of spring weather and the approach of widespread agricultural activity found jobbers with stocks at minimum. Although there was no confused rush into the buying market refiners reported steady inquiries and contract shipments were on a steady upgrade. The favorable factors were offset to some extent by flood conditions throughout a large portion of the Mississippi Valley but high water was reported receding rapidly except in the southern portion of the valley. Roads in the northern consuming area are again becoming passable after being snowed under for many weeks. A further boost was given the market when reports showed the federal tender board again to be active in the East Texas area. Oklahoma jobbers were having difficulty in obtaining any appreciable amount of East Texas material and most of the incentive to buy from that area had been removed as prices asked were near those of the Group 3, Oklahoma, market.

Natural gasoline was reported steady along with the buring oils and kerosenes with prime white distillates leaning toward a very strong position.

West Coast Tanker Crews Go on Strike

A STRIKE of oil tanker crews on the West coast threatens to practically stop water movement of petroleum products up and down the Pacific Coast from Los Angeles and San Francisco. On March 11 crews had quit 11 tankers and union officials stated that crews of incoming tankers would be called out as fast as the vessels docked.

The unions are demanding increase in wages, recognition of unions and new agreements on overtime. It has been estimated that if the strike becomes complete, about 1200 men will be out.

The laying up of the tankers will force the use of railroad tank cars and large trucks and trailers for distant coast points, thus considerably increasing the delivered cost of the various products, mainly gasoline.

In Southern California, the continued overproduction of crude oil and natural gasoline is aggravating an already bad situation. The fight on the part of independent service stations for the right to retail at a half-cent under stations controlled by the larger stations is being continued and it is rumored they will be given this privilege. The agency has instructed all refiner members to refuse to make deliveries to stations selling at reduced prices, but this action has not had the full effect desired. Many cut price signs have been removed, but it is reported the old reduced prices are still in effect.

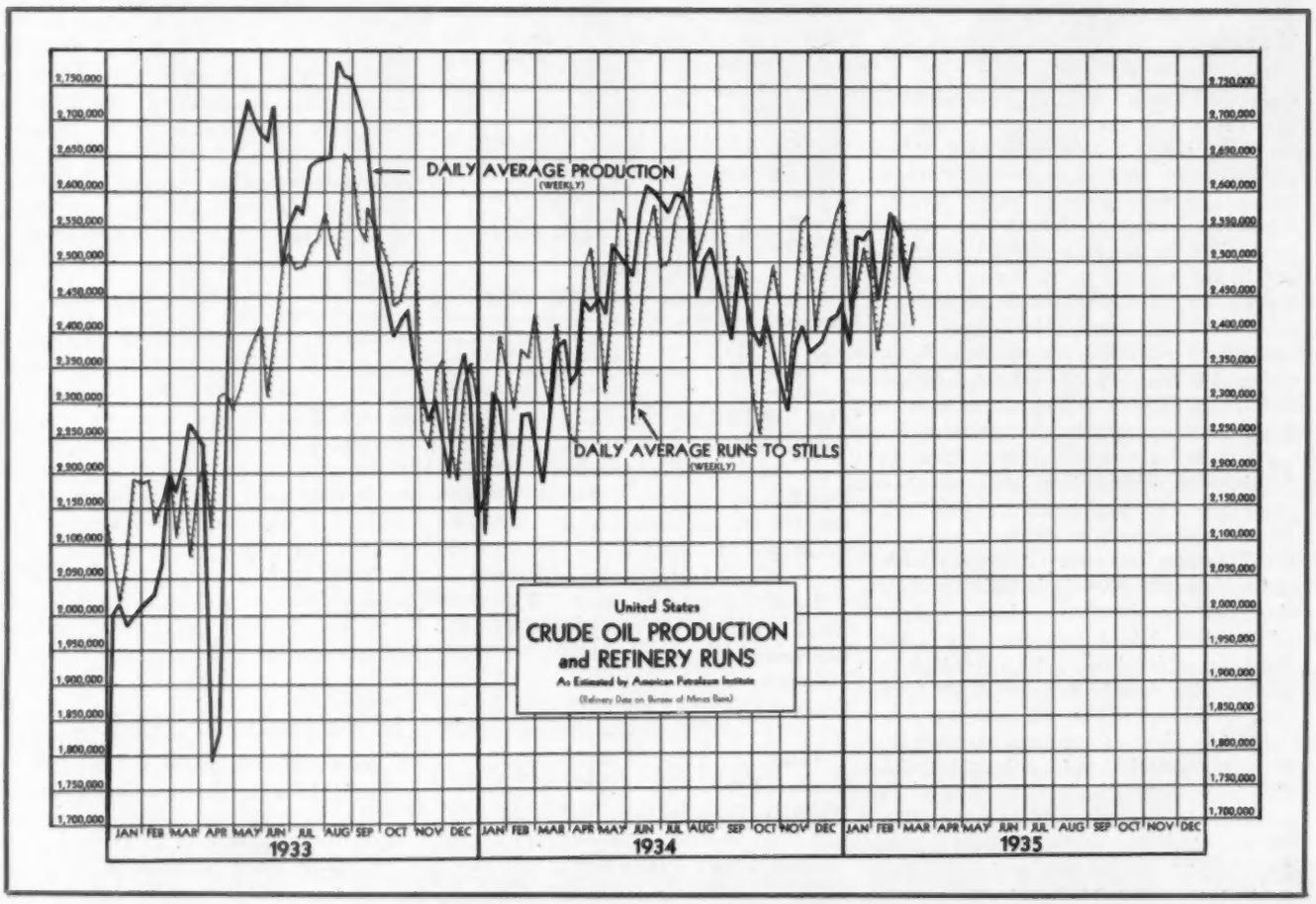
The few small refiners outside of the agency are securing sufficient spot crude and natural gasoline to continue operation, and are dumping gasoline or motor fuel from tank wagons at 10.5 to 11.5 cents against an official price of 12.5 cents.

Fuel oil prices continue firm with no indications of a break in the near future. Diesel and gas oil also continues firm and scarce.

Utility Bill Is Amended by Senate

Austin, Texas. — The Texas Senate has passed House Bill No. 46 by Cecil Lotief of Cross Plains, which seeks to prevent discrimination by utilities.

The measure provides that after a utility has declined to reduce its rates, it may not later do so in order to fight competition. The Senate amended the bill, however, to permit such reductions to meet rates of municipally owned plants. This will require the bill to be sent back to the House for concurrence in Senate amendments.



Texas Permits Near All-Time High Record

Austin, Texas.—By allowing permits for the drilling of 428 new wells last week, the Texas Railroad Commission approached the all-time high for any one week, which was set in January of this year.

In the East Texas field, permits for the drilling of 231 new wells were granted, practically all of which were exceptions to the spacing rule. Sinclair alone obtained permits for 74 wells. There were 117 in Gregg County, 64 in Rusk County, 35 in Smith County and 15 in Upshur County.

Increased drilling operations in North Texas were reflected by the 64 new permits there. Archer County was in the lead with 32 new locations, there were 19 in Young County, and nine in Wichita County.

Southwest Texas reported 40 new permits, with 11 in Duval County, while in the Gulf Coast area there were 35 wells reported; Harris County listed 13 with eight in the New Mykawa area.

In West Texas 20 new permits were reported, while the Panhandle listed 15, most of which were in Gray and Wheeler Counties.

Bottom-Hole Gauges Taken in South Texas

Austin, Texas.—The Texas Railroad Commission has just completed bottom-hole pressure surveys in Bruni, Samfordyce, Government Wells and Tuleta, according to Gordon Griffin, chief petroleum engineer.

Summaries of the results of these tests will be presented at the statewide proration hearing set for Monday, March 18, at Austin.

So far, the commission has not been advised of any controversial matters that will be brought up at the hearing.

Lopena Gas Field Hearing March 25

Austin, Texas.—The Texas Railroad Commission has scheduled a hearing to be held in Laredo on March 25 to consider field rules for the Lopena Gas field in Zapata County.

American Texas Oil Company, one of the principal operators in the field, petitioned the Commission asking that the hearing be held.

In this petition the company pointed out that several shallow gas sands were encountered above 300 feet, but that some of the wells have only 100 feet of surface casing. Production is found between 2030 and 2075 feet.

The petitioners urged the commission to require 450 feet of surface casing, in order to case off these upper sands completely and prevent blowouts which might endanger an entire section of the field. The productive area was estimated at 5000 acres.

Public Works Fund Diversion Criticized

Washington, D. C.—Diversion to various activities of some $22,000,000 from the public works fund of $3,300,000,000 provided by Congress in the Industrial Recovery Act, including $830,000 for enforcement of the oil code and $13,428,000 for operation of the National Recovery Administration, was criticized March 12 by Senator Byrd of Virginia, leader of the movement to reduce materially the $4,800,000,000 now being sought by the President for work relief.

The figures were obtained by the senator from a report rendered by the Treasury Department in response to a Senate resolution. While no doubt legal, he said, these diversions of funds were subject to criticism.

The report showed that not only were funds from the public works account allocated to emergency agencies such as the recovery administration but that money was also supplied to organizations in the permanent government structure, such as the Department of Labor and the Federal Power Commission, for which definite appropriations are made annually by Congress.

10-Acre Spacing Applied to Mykawa

Austin, Texas.—After a hearing held in Austin last Monday, the Texas Railroad Commission issued a spacing rule for the New Mykawa field in Harris County.

The new rule provides that wells shall be spaced 330 feet from lease lines, or 660 feet apart. It applies only to that section of the Mykawa field lying west of the G. C. & S. F. Railway. The order is effective as of March 11.

At the hearing Alexander Deussen, petroleum geologist representing J. M. West Production Company, told the commission that the field was a non-piercement type dome similar to Thompson and Manvel.

He expressed the opinion that while 20-acre spacing would be advisable, the 10-acre rule would be much more practical, since all the leases within the area which he expects to produce, are held in 10-acre units.

United States Crude Oil Output Continues Upward

UNITED STATES crude oil production continued to climb during the past week, averaging 2,601,100 barrels daily, as compared with an average daily production of 2,530,625 barrels during the previous week. Both totals are exclusive of surreptitious production, which has been declining for several weeks. The current in-

United States Crude Oil Production

Estimates Compiled by The Oil Weekly

District or State	Barrels Daily for Week Ending Mar. 16	Mar. 9
TEXAS—		
Texas Panhandle	59,000	62,500
North Texas	57,600	57,750
West Central Texas	26,100	26,000
West Texas	152,000	150,000
East Central Texas	52,000	51,500
East Texas Field	*443,000	*440,000
South Texas	60,100	60,000
Texas Gulf Coast	178,200	176,250
Total Texas	1,028,000	1,024,000
OKLAHOMA—		
Oklahoma City	162,900	136,450
Seminole Area	129,725	113,275
Tatums	5,600	5,600
Lucien	9,725	7,450
Fitts	12,175	6,200
Others	190,850	188,675
Total Oklahoma	510,975	457,650
KANSAS—		
Ritz-Canton	8,650	10,100
Voshell	7,100	5,625
Nikkel-Hollow	10,275	10,350
Sedgwick	9,325	9,925
Burrton-Haury	25,125	22,875
Others	89,100	84,750
Total Kansas	149,575	143,625
LOUISIANA—		
North Louisiana	22,600	22,900
Louisiana Gulf Coast	95,750	96,000
Total Louisiana	118,350	118,900
ARKANSAS	31,100	31,000
CALIFORNIA—		
Long Beach	69,500	70,000
Santa Fe Springs	39,500	39,500
Huntington Beach	43,500	39,000
Dominguez	21,000	18,000
Inglewood	10,000	9,000
Ventura Avenue	26,500	23,500
Seal Beach	7,000	8.000
Midway-Sunset	56,500	56,000
Elwood	9,500	9,000
Kettleman Hills	61,500	65,000
Mountain View	13,000	12,000
Playa del Rey	18,000	15,000
Others	154,500	156,000
Total California	530,000	520,000
MOUNTAIN STATES—		
Wyoming	32,000	33,000
Montana	11,000	10,750
Colorado	4,100	4,200
Total Rocky Mountain States	47,100	47,950
NEW MEXICO	48,000	47,500
EASTERN STATES	105,000	106,000
MICHIGAN	33,000	34,000
Total United States	*2,601,100	*2,530,625
*Surreptitiously produced oil East Texas not included in above figures, estimated at	25,000	30,000
Grand total, including surreptitious production	2,626,100	2,560,625

Crude Runs to Stills, Finished and Unfinished Gasoline, Gas and Fuel Oil Stocks; and Cracked Gasoline Production, Week Ended March 9, 1935

(Figures in thousands of barrels of 42 gallons each)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		Stocks of Finished Gasoline			(a) Stocks of Unfinished Gasoline	(b) Stocks of Other Motor Fuel	Stocks of Gas and Fuel Oil	Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
	Potential Rate	Reporting Total	Reporting %	Daily Average	% Operated	At Refineries	Bulk Term., in Trans. & Pipe Lines	Total at Refys., Term., etc.				Potential Rate	Reporting Total	Reporting %	Daily Average
East Coast	582	582	100.0	477	82.0	7,503	9,978	17,481	1,054	190	9,983	496	471	95.0	85
Appalachian	150	140	93.3	93	66.4	1,267	878	2,145	312	130	922	69	69	100.0	20
Ind., Ill., Ky.	446	422	94.6	310	73.5	6,077	3,827	9,904	784	50	4,143	325	309	95.1	98
Okla., Kans., Mo.	461	386	83.7	251	65.0	3,388	2,014	5,402	818	410	3,894	256	238	93.0	58
Inland Texas	351	167	47.6	95	56.9	1,228	139	1,367	268	400	1,821	82	66	80.5	22
Texas Gulf	601	587	97.7	532	90.6	6,329	209	6,538	1,484	125	8,872	358	355	99.2	101
Louisiana Gulf	168	162	96.4	98	60.5	993	458	1,451	237	.....	3,678	71	71	100.0	20
North La.,—Ark.	92	77	83.7	38	49.4	207	61	268	52	100	401	41	38	92.7	8
Rocky Mountain	96	64	66.7	35	54.7	829	.....	829	108	50	723	46	42	91.3	10
California	848	822	96.9	359	43.7	8,448	2,090	10,538	1,013	2,470	65,609	209	209	100.0	49
TOTALS WEEK: March 9, 1935	3,795	3,409	89.8	2,288	67.1	36,269	19,654	55,923	6,130	3,925	100,046	1,953	1,868	95.6	471
March 2, 1935	3,795	3,409	89.8	2,351	69.0	35,807	19,847	55,654	5,668	3,955	100,340	1,953	1,868	95.6	482

Below are set out estimates of Crude Runs and Cracked Gasoline Production on B. of M. Basis for week March 9, 1935, compared with March, 1934 Bureau figures.

Estimate B. of M. Basis March 9, 1935	2,410			520
Estimate B. of M. Basis March 2, 1935	2,475			530
U. S. B. of M. March, 1934: Daily Average Crude Runs	2,316		U. S. B. of M. March, 1934: Daily Average Cracked Production	446

(a) Amount of Unfinished Gasoline contained in Naphtha Distillates.
(b) Estimated. Includes Unblended Natural Gasoline at refineries and plants; also Blended Motor Fuel at Plants.

crease follows a similar increase during the preceding week.

Oklahoma, with a daily average increase of 53,325 barrels, accounted for the greater portion of the rise. Both the Oklahoma City and Seminole fields showed sharp increases. Several of the smaller fields also recorded gains.

California production climbed to 530,000 barrels daily, an increase of 10,000 barrels over the daily average of the previous week. Huntington Beach, Ventura Avenue and Dominguez accounted for the bulk of the daily gain.

Production was slightly higher in Texas, but the increase was nominal. The output is above the Federal agency allowable of 1,020,100 barrels, but not dangerously so.

Kansas, with a daily average production of 149,575 barrels, showed an increase, but Louisiana, Rocky Mountain states, Michigan and New Mexico did not change materially.

Production of "hot" oil declined to the lowest level recorded in two or three months, having been estimated at 25,000 barrels daily. The East Texas field is producing the bulk of this type of production.

Magnolia Sells Its Corsicana Properties

Corsicana, Texas.—Magnolia Petroleum Company has withdrawn from the Corsicana-Powell, Wortham and Mexia fields as a producing unit as result of the sale of its properties to C. L. Brown, Corsicana, and associates for $84,000. The company retained mineral rights below the 3300-foot level on all the leases. The deal involves 24 pumping oil wells and two small gassers, all producing from the Woodbine sand horizon, plus lease equipment and structures. The wells are producing about 285 barrels of oil and a large volume of salt water daily.

Pure Oil Company is the only major concern holding on to its producing properties in the Mexia fault zone. Fifty percent of its production, or about 50,000 barrels monthly, is applied on the 33,333,333-barrel crude contract originally made by the late Col. A. E. Humphreys, with the Continental Trading Company, which in turn diverted the oil to the Sinclair Crude Oil Purchasing Company (now Stanolind Crude Oil Purchasing Company), and the Prairie Oil & Gas Company (now Sinclair Prairie Oil Marketing Company). Pure Oil Company receives $1.50 per barrel for the life of the contract, which is reported to be about 5,000,000 barrels short of completion.

Lovel, Wyo.—Ohio Oil Company's Hoskins 1, SW 14-56n-97w, Byron field, is rigging up for pumping test. The well swabbed 20 barrels an hour through the 2½-inch tubing with hole bottomed at 5214 feet in the Tensleep.

Crosby & Huntington Syndicate's Denio Milling 1, Tract 43-C, Section 15-55n-97w, Byron, is re-cementing the 13⅜-inch string at 1083 feet and will carry the 10-inch casing.

Comparison of Permits Granted For New Wells

STATE—	Week Ending Mar. 9	Total this Mo.	Total this Year	Total this Date Last Year	1934 Year Total
Arkansas.	2	2	33	11	100
California	22	40	151	92	629
Louisiana.	16	27	139	151	799
Kansas...	28	54	280	147	1,015
Michigan.	6	16	78	81	460
Oklahoma	61	100	406	362	2,045
Texas....	417	595	2,588	1,672	10,550
Total..	552	834	3,675	2,516	15,598

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to March 15, 1935)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$ .84	2¢	40—$1.08	9-29-33
N. and N.-C. Texas	28— .79	2¢	40— 1.03	9-29-33
Texas Panhandle				
Gray County	34— .79	2¢	40— .91	9-29-33
Carson-Hutchinson	34— .69	2¢	40— .81	9-29-33
West Texas				
Ector, Pecos, Wk'lr	*.75			9-29-33
Crane, Upton, Howard and Glasscock	*.70			9-29-33
East Texas	*1.00			9-29-33
Texas Gulf Coast				
Conroe	35— 1.09	2¢	40— 1.19	9-29-33
Tomball	*1.15			9-29-33
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 20— .82	2¢	34— 1.12	9-29-33
South and S.W. Texas				
Refugio (Light)	Below 20— .82	2¢	34— 1.12	9-29-33
Refugio (Heavy)	*.85			9-29-33
Saxet	*.85			9-29-33
Mirando	*.80			9-29-33
Pettus	*1.05			9-29-33
Salt Flat	*.87			9-29-33
Darst Creek	*.87			9-29-33
Arkansas				
El Dorado (Light) and Rainbow	29— .79	2¢	40— 1.03	3-17-34
El Dorado East Field and Smackover	*.70			9-29-33
North Louisiana	29— .79	2¢	40— 1.08	9-29-33
Urania	*.85-*.87			1- 1-34
SouthLouisiana				
Lockport	Below 20— .80	2¢	34— 1.10	9-29-33
Iowa, Cameron Mds.	Below 20— .70	2¢	34— 1.00	9-29-33
Rocky Mountain States				
Salt Creek	29— .84	2¢	40— 1.08	9-29-33
Elk Basin	*1.17			9-29-33

*All gravities—flat rate.
†Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Grass Creek (Light)	*1.17			9-29-33
Big Muddy	*$1.01			9-29-33
Rock Creek	*1.02			9-29-33
Sunburst	*1.35			9-29-33
Lance Creek	*1.02			8-25-33
Osage	*.62			8-25-33
Cat Creek	*.45			8-25-33
Pondera	*.65			8-25-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	*.75			9-29-33
Mid-West States				
Lima	*1.15			2- 1-35
Illinois	*1.13			1- 5-34
Princeton	*1.13			1- 5-34
Western Kentucky	*1.08			5-26-34
California				
Signal Hill	14— .65	1¢	16— .66	9- 6-33
	17— .69	2¢	22— .84	9- 6-33
	23— .88	3¢	30— 1.09	9- 6-33
Seal B., Alamitos Hts.	19— .65	3¢	20— .68	9- 6-33
	21— .72	4¢	22— .76	9- 6-33
	23— .81	4¢	26— .93	9- 6-33
	27— .98	4¢	30— 1.10	9- 6-33
Huntington Beach	14— .65	4¢	15— .69	9- 6-33
	16— .72	3¢	19— .81	9- 6-33
	20— .83	3¢	28— 1.07	9- 6-33
	29— 1.09	3¢	30— 1.12	9- 6-33
Inglewood	14— .65	4¢	16— .73	9- 6-33
	17— .76	4¢	18— .80	9- 6-33
	19— .83	4¢	20— .87	9- 6-33
	21— .90	4¢	22— .94	9- 6-33
	23— .97	4¢	24— 1.01	9- 6-33
Playa del Rey	14— .65	1¢	15— .66	9- 6-33
	16— .69	4¢	17— .73	9- 6-33
	18— .76	4¢	19— .80	9- 6-33
	20— .83	4¢	21— .87	9- 6-33
	22— .90	4¢	23— .94	9- 6-33
	24— .97	3¢	25— 1.00	9- 6-33
			26— 1.04	9- 6-33
Olinda-Brea Canyon	14— .65	4¢	16— .73	9- 6-33
	17— .76	3¢	28— 1.10	9- 6-33
Athens-Rosecrans Domingues	23— .83	3¢	24— .86	9- 6-33
	25— .90	4¢	26— .94	9- 6-33
	27— .97	3¢	29— 1.04	9- 6-33
	30— 1.08	4¢	31— 1.12	9- 6-33
			32— 1.15	9- 6-33
Elwood (fob ship)	33— 1.03	3¢	37— 1.15	9- 6-33
Torrance	14— .65	1¢	15— .66	9- 6-33
	16— .69	3¢	20— .81	9- 6-33
	21— .83	3¢	26— .98	9- 6-33

*All gravities—flat rate.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Richfield	15—$ .65	2¢	16—$ .67	9- 6-33
	17— .70	4¢	20— .82	9- 6-33
	21— .85	4¢	22— .89	9- 6-33
	23— .93	4¢	24— .97	9- 6-33
	25— 1.00	4¢	27— 1.08	9- 6-33
	28— 1.11	4¢	29— 1.15	9- 6-33
Whittier-LaHabra	15— .65	3¢	18— .74	9- 6-33
	19— .78	3¢	24— .93	9- 6-33
Montebello	19— .65	1¢	20— .66	9- 6-33
	21— .69	3¢	22— .72	9- 6-33
	23— .76	4¢	24— .80	9- 6-33
	25— .85	4¢	26— .89	9- 6-33
Coyote Hills	16— .65	3¢	19— .74	9- 6-33
	20— .78	3¢	29— 1.05	9- 6-33
	30— 1.09	3¢	34— 1.21	9- 6-33
Santa Fe Springs	21— .72	4¢	22— .76	9- 6-33
	23— .79	4¢	25— .87	9- 6-33
	26— .90	4¢	28— .98	9- 6-33
	29— 1.01	4¢	30— 1.05	9- 6-33
	31— 1.08	4¢	33— 1.16	9- 6-33
	34— 1.19	4¢	35— 1.23	9- 6-33
	36— 1.26	4¢	38— 1.34	9- 6-33
New Hall, McKittrick, Kern River	14— .57		19— .57	9- 6-33
Midway-Sunset, Elk Hills, Buena Vista Hills	17— .57	4¢	18— .61	9- 6-33
	19— .64	3¢	22— .73	9- 6-33
	23— .77	4¢	33— 1.17	9- 6-33
Lost Hills	17— .57	4¢	21— .73	9- 6-33
	22— .76	3¢	30— 1.00	9- 6-33
Coalinga	17— .57	1¢	18— .58	9- 6-33
	19— .62	3¢	21— .68	9- 6-33
	22— .72	3¢	25— .81	9- 6-33
Wheeler Ridge	17— .57	1¢	18— .58	9- 6-33
	19— .61	3¢	25— .79	9- 6-33
Kettleman Hills	33— .93	3¢	39— 1.11	9- 3-33
Pennsylvania				
Bradford	*2.35			2- 4-35
Sw Pa. Pipe Line	*2.02			2- 4-35
Eureka Pipe Line	*1.97			2- 4-35
Buckeye Pipe Line	*1.87			2- 4-35
Corning Grade	*1.32			10- 2-33
Michigan				
Central Michigan	*1.20			9-30-33
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

*All gravities—flat rate.

Summary of Wells Completed in the United States Week Ending March 9, 1935

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1935	Total Completions this date 1934
Alabama	...	...	...	...	.....	1	1
Arkansas	3	1	...	2	80	39	14
California	11	9	1	1	8,440	133	63
Colorado	1	1	...	...	1,440	3	4
Illinois	2	...	...	2	.....	6	2
Indiana	6	1	3	2	70	36	40
Kansas	25	18	...	7	15,014	234	139
Kentucky	4	3	...	1	45	20	13
Louisiana	13	9	1	3	5,980	134	137
Michigan	4	1	2	1	100	60	88
Mississippi	...	...	...	...	.....	5	6
Montana	1	1	...	...	235	10	19
New Mexico	...	...	...	...	.....	48	18
New York	...	...	...	...	.....	...	3
Ohio	26	9	11	6	95	297	193
Oklahoma	57	35	4	18	73,415	405	375
Pennsylvania	2	1	1	...	5	26	66
Texas	240	183	8	49	682,180	2,001	1,694
Utah	...	...	...	...	.....	...	3
West Virginia	5	...	4	1	100	108	98
Wyoming	1	1	...	...	25	3	6
Total this week	401	273	35	93	783,224	3,569	2,982
Total last week	330	217	35	78	588,927	3,168	...
Total this year	3,569	2,305	336	928	6,619,686	...	...

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
March 5, 1933	.....	.....	Cut 24.
May 2, 1933	.....	Cut 19.	.....
May 9, 1933	Cut 20.	.....	.....
May 22, 1933	Up 10.	.....	.....
June 19, 1933	Up 10.	Up 19.	.....
June 26, 1933	Up 10.	.....	Up 9-12
July 6, 1933	Up 13.	Up 10.	.....
July 17, 1933	Up 15.	.....	.....
July 28, 1933	Up 15.	.....	.....
August 11, 1933	Up 10.	.....	.....
August 24, 1933	.....	Up 10.	.....
August 30, 1933	Up 15.	.....	.....
September 6, 1933	Up 10.	Up 10.	Up 15.
September 8, 1933	.....	Up 15.	.....
May 1, 1934	Up 10.	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25.	.....	.....
January 4, 1935	Up 15.	.....	.....
February 4, 1935	Up 15.	.....	.....

CRUDE PRODUCTION TAXES

Oklahoma—Three percent of gross value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Three percent of gross value at well and ½-cent per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

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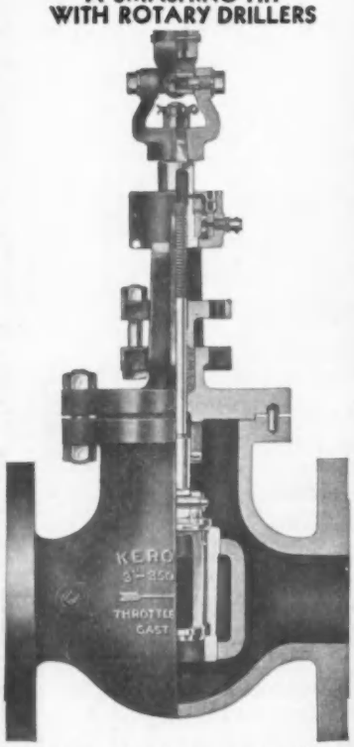

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Interesting Program Is Planned For Geologists Annual Meeting

Wichita.—The twentieth annual meeting of The American Association of Petroleum Geologists will be held at Wichita, Kansas, March 21-22-23, 1935. The two technical divisions of the association—paleontology and geophysics—are also meeting at this time: the ninth annual meeting of the Society of Economic Paleontologists and Mineralogists, March 22-23, and the sixth annual meeting of the Society of Petroleum Geophysicists, March 21-22. Headquarters for all meetings is the Allis Hotel. The last annual meeting of the association, held in Wichita, was 10 years ago, in 1925. An attendance of about 1000 is expected this year.

Sessions of general technical interest will be held Thursday, Friday, and Saturday, March 21, 22, and 23, in the ball room of the Allis Hotel. Sessions devoted to geophysics will be held Thursday and Friday in the Aviation Room; and sessions on Paleontology will be held Friday and Saturday in the Aviation Room, Allis Hotel. Exhibits of technical apparatus and equipment will be on display throughout the convention.

On Saturday or Sunday following the

A. A. P. G. Meeting Program

For Oral Delivery Thursday, March 21

R. C. Moore, Classification of Late Paleozoic Rocks of Mid-Continent Region.

L. C. Morgan, Pre-Cambrian Rocks of Kansas.

Edward A. Koester, Geology of Central Kansas Uplift.

Leo R. Fortier, Voshell Trend, Kansas.

Virgil R. D. Kirkham, Origin of Folds in Michigan Basin.

Fanny Carter Edson, St. Peter Stratigraphy.

C. W. Tomlinson and Maynard P. White, Structure of Arbuckle and Ouachita Mountains.

J. E. Adams, Upper Permian Stratigraphy of West Texas Permian Basin.

For Oral Delivery Friday, March 22

Theodore A. Link, Some Types of Foothills Structures in Alberta, Canada.

G. E. Condra and E. C. Reed, Pennsylvanian and Permian of Hartville Uplift, Wyoming.

David White, Metamorphism of the Organic Sediments and the Derived Oils. (Posthumous.)

Parker D. Trask, Problem of Petroleum Generation.

Norman L. Thomas, Contributions of Paleontology.

John Trenchard and J. B. Whisenant, Government Wells Oil Field, Duval County, Texas.

Symposium on Currently Active Fields:
South Texas, Thornton Davis.
South Texas Salt Dome, Paul Weaver.
West Texas, Hal P. Bybee.
North-Central Texas, M. M. Garrett.
Southwestern Oklahoma, Frank Gouin.
Michigan, R. B. Newcombe.
North-Central Oklahoma.
Kansas, Roy Hall.

For Oral Delivery, Saturday, March 23

A. A. Baker, Geologic Structure of Southeastern Utah.

Irving Perrine, Responsibilities of the Geologist in the Sale of Oil and Gas Securities to the Public.

E. B. Noble and W. D. Kleinpell, Geology of Edison Oil Field, San Joaquin Valley, California.

F. G. Clapp, Safety of Water-Flooding at Bradford, Pennsylvania.

D. C. Barton, Variation and Migration of Crude Oil at Spindletop, Jefferson County, Texas.

T. C. Hiestand, Regional Investigations, Oklahoma and Kansas.

F. M. Van Tuyl and Ben H. Parker, Extra-Terrestrial Hydrocarbons and Petroleum Genesis.

T. A. Hendricks, Some Variations in Fixed Carbon in Coals of Arkansas-Oklahoma Coal Field.

Henry Rogatz, Subsurface Geology of Texas Panhandle.

Coleman D. Hunter, Natural Gas from Devonian Shale in Eastern Kentucky.

For Delivery by Title

Billings and Maucini, The Nocona Oil Field, Montague County, Texas.

F. G. Clapp, Occurrence of Oil in Grabens.

C. H. Dane, W. G. Pierce, J. B. Reeside, Reconnaissance Observations of the Upper Cretaceous Rocks North of the Arkansas River in Eastern Colorado.

James Daniels, The "Hunton" Limestone of Kansas.

Frank Gouin, Some Notes on the Economic Spacing of Oil Wells.

W. I. Ingham, The Wellington Oil Field, Colorado.

W. B. Lang, Permian Formations of Pecos Valley of Texas and New Mexico.

George Norton, The Upper Wellington and Lower Redbed Section in Kansas.

O. C. Postley, Natural Gas Developments and Possibilities East of Main Oil and Gas Fields of Appalachian Region.

John Garlough and Garvin Taylor, The Hugoton Gas Field of Kansas.

E. I. Thompson, Stratigraphy of Central and Western Oklahoma.

Lon B. Turk, Origin of Misener Sand and Relation of Its Local Characteristics to Oil and Gas Production.

D. Jerome Fisher, Western Lawrence County Oil Field, Illinois.

D. Jerome Fisher, Origin of Petroleum with Particular Reference to Deposits of Western Lawrence County Oil Field.

Walter V. Searight, Recent Refinements in Lance Stratigraphy in South Dakota.

H. de Cizancourt, Petroleum Research in the French Colonies.

Papers in Geophysics Division

Thursday:

John W. Flude, Portable Storage Magazines for Dynamite.

Roy Hightower, Premature Explosions in Seismic Explorations.

G. H. Loving and G. H. Smith, Explosives and Electric Blasting Caps for Geophysical Prospecting.

Paul W. Klipsch, Performance of Oscillograph Amplifiers to Transient Shock Excitation.

E. E. Rosaire, Strategy and Tactics in Geophysical Exploration for Petroleum.

Friday:

Donald C. Barton, Delimitation of Cap by Torsion Balance, Hoskins Mound, Brazoria County, Texas.

Paul Weaver, Irregularities in Torsion-Balance Surveys from Near-Surface Effects.

E. W. K. Andrau, Schlumberger Correlations and Tectonic Problems on Gulf Coast Salt Dome.

Maurice Ewing, A. P. Crary, and J. W. Peoples, Seismic Tests on Anthracite.

C. A. Heiland, Confirmation of Reflection Work in Canada by Drilling.

Gerald H. Westby, Effect of Surface and Near-Surface Beds on Reflection Seismic Results.

J. Brian Eby and Robert P. Clark, Relation of Geophysics to Salt-Dome Structures.

Symposium of Geophysical Activity Throughout the United States and Some Foreign Countries, G. H. Westby, Joseph L. Adler, John H. Wilson, O. C. Lester, Jr., Henry Salvatori, H. B. Peacock, E. G. Leonardon.

technical meetings, a field trip has been arranged through several oil fields to a salt mine at Lyons, Kansas, where the underground formations may be studied by electric light. On Sunday or Monday, a party will be conducted by State Geologist Raymond C. Moore through eastern Kansas, to study the Permian and Pennsylvanian surface rocks.

The list of papers to be presented at the technical sessions indicates a wide variety of subjects, both regionally and scientifically, on petroleum geology.

Hearings This Week On Oil Trucking Bills

Austin, Texas.—Hearings on bills to prevent the movement of excess production by truck will probably be held this week, according to Sidney Latham, chairman of the House Oil, Gas and Mining Committee.

The committee now has before it a bill by Representative J. C. Duval of Fort Worth, which would penalize the trucker by confiscating to the state any oil or products which were not handled in compliance with Railroad Commission orders.

Under the present law, the state may file suit against the operator of the truck, asking penalties of $1000 per day, for each day of violation of the Railroad Commission order. Because of the enormous burden in preparing these suits, cases are delayed and the penalties are rarely assessed.

The attorney general has prepared a substitute for the Duval bill which will be offered when the question is brought up before the Oil, Gas and Mining Committee.

This bill, which specifically exempts trucks hauling oil from a local dealer to filling stations, would assess penalties ranging from $25.00 to $200.00. The attorney general is of the opinion that collection of these fines, as a criminal penalty, will be much simpler than is the collection of the heavier penalties in a civil suit.

The measure has been drawn with great care to prevent more than one interpretation of any phrase of the statute, since most of the cases will be tried in justice of the peace courts.

All peace officers and Railroad Commission agents would be empowered to stop trucks, examine their papers, and file charges when the papers were not in order.

Possession of untendered oil in a truck, as in the Dean liquor law, is prima facie evidence of intention to violate the statute.

Because of the criminal penalties, the law provides that orders applicable to these trucks must be published by the Railroad Commission in three daily newspapers before they become effective.

Little opposition to the bill is anticipated, since it applies to oil trucks alone.

Michigan Oil Tax to Have Public Hearing

Mt. Pleasant, Mich.—A public hearing on the House bill proposing to increase the state oil and gas severance tax from two to three percent and also for a re-allocation between the state, county and township of the tax has been called for March 20.

The two percent tax in 1934 grossed approximately $225,000 and on the basis of last year's production and price the increase of one percent would boost the tax to more than $340,000 for the year. At the present time the tax is split 40 percent with the state, 40 percent with the townships and 20 percent with counties. The House bill would give the state 9/15, and the counties and townships each 3/15.

Henry G. Hunt, executive secretary of the Oil and Gas Association of Michigan, which is waging a vigorous fight against any increased taxation on the industry, announced that he would file a written brief with the hearing committee and that representatives of both the oil industry and townships and counties will appear personally to protest against passage of the bill.

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Deep West Texas Test Showing Gas

San Angelo.—Rated as a strong contender for deep production honors in West Texas, the Glasscock County wildcat of John I. Moore, Loffland Brothers and others on the L. S. McDowell ranch was showing gas late last week while unloading for a production test in lime at 9520 feet. The well is generally conceded as a probable producer, as it made a small volume of gas and some oil through rotary mud after drilling into the producing horizon at 9484 feet. Operations were halted to cement 7⅝-inch pipe at 9468 feet as Loffland Brothers, the contractors and owners of 53 percent interest in the unit block of 5970 surrounding acres, were carrying open hole below 2183 feet.

The production showing is from the lower section of the Pennsylvanian lime, with top of the Crinoidal section logged at 9471 feet, or 6937 feet below sea level.

Averaging more than 30 feet of new hole daily the past week, Gulf Production Company's J. T. McElroy 103, holder of drilling depth honors for the world, has progressed to 11,628 feet late last week. It is logging brown and gray limestone, with only a small percentage of chert.

Skelly Oil Company et al's University 1-D, situated on a unitized block in southern Reagan County, has progressed to the 9700-foot level.

The above three deep tests were drilled with the Ellenberger section of the Ordovician lime as their goal.

South Cooper Test Is Showing Water

Hobbs, New Mexico.—An irregular bottom-hole water table for the south portion of the Cooper field was encountered by Empire Gas & Fuel Company's N. Everett 2, C SE SW 35-24s-36e, in testing 500 barrels of fluid, 90 percent sulphur water, during first 24 hours from lime at 3492 feet, or 225 feet below sea level. Other sections of the field fared better in scoring two large oil producers, and operations have been started on four new tests on the west and north flanks of the producing area.

Appearance of water in Empire Gas & Fuel Company's Everett 2 was not anticipated, as Phillips-Pure interests' Wool 1, C NE NE 3-25s-36e, or slightly more than one half mile to the southwest, was recently completed for a flowing well at a sub-sea depth of 235 feet. The latter is 10 feet lower and did not make water on four-hour open tubing gauge. Empire Gas & Fuel Company's Everett 2 will be plugged back to 3450 feet, as it showed favorably on drill stem test in lime at 3415-45 feet. Pipe was cemented at 3415 feet.

Three new tests for the west side of the field have been ordered drilled by The Texas Company following the completion of its I. B. Ogg 4-A, C NW NW 35-24s-36e, making 200 barrels of oil per hour through four-inch flow line on casing, with 200 pounds gas pressure. Production is from lime at 3469-3486 feet, giving it a sub-sea depth of 190 feet. Volume of gas measured at rate of 5,040,000 cubic feet daily, indicating a balanced gas-oil ratio. The new locations by the company are on the I. B. Ogg "B" lease, Section 34-24s-36e. Ogg 1-B and 2-B are in the center of the southeast and northeast 40-acre units, respectively, while 3-B is spotted at C SE NE. Amerada Petroleum Corporation holds lease on the NE SE 34-24s-36e.

Continental Oil Company and The California Company's D. L. Vaughn 1-A-15, C SE SE 15-24s-36e, situated on the north border of the oil producing area in the Cooper field, scored a heavy flow of oil with a balanced gas-oil ratio when deepened a second time for increase in oil yield from lime at 3546-65 feet. It has previously tested mostly gas from lime at 3500-20 feet and at 3533 feet. The well was carried to a sub-sea depth of 211 feet, and gauged 100 barrels of oil per hour flowing between drill pipe and 5½-inch casing, with gas production estimated at 2,500,000 cubic feet daily. Amerada Petroleum Corporation's J. L. Isabell 1, C SE NE 15-24s-36e, or one half mile due north, is moving in materials to try for an extension. Humble Oil & Refining Company et al's J. L. Coates 1-A, relief well for Coates 1, C NW NE 10-24s-36e, junked gasser that has been partially out of control since last October in lime at 3370 feet, has cemented 8⅝-inch pipe at 1360 feet with 275 sacks of cement. This directional drilling project has a 1600-foot salt section to contend with after passing through the thin section of anhydrite topped at 1324 feet, as compared to 1260 feet on the gasser.

Stanolind Oil & Gas Company's Meyer 4-A, C NE SW 22-24s-36e, first well on the west side of the Cooper field to drill into water, tested 150 feet of sulphur water in 45 minutes when formation tester was used at 3620 feet,

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or 267 feet below sea level. It was originally drilled to 3606 feet, yielding oil, gas and water, and failed to attain a water shutoff in plugging back to 3560 feet. The hole was deepened 14 feet the past week.

Amerada Petroleum Corporation's State 1-D, C NW NW 1-20s-36e, discovery well of the Monument area, about eight miles north by west of the Eunice field, scored a water shutoff in plugging back from 3954 to 3945 feet. The well swabbed 493 barrels oil on 24-hour test, then shutdown to treat the lime horizon with 2000 gallons of acid solution. The results of this treatment had not been determined late last week.

Completions in East Texas Represent Large Sum

Tyler, Texas.—Completion of 93 oil producers and a junked hole in the East Texas field the past week represents an actual expenditure of more than $1,000,000 for the period in equipment and labor. Volume of completions has been working to higher levels each week, with few exceptions, since the first of the year, and it is generally predicted that the weekly quota may again go beyond 100 completions. Small units appear to have little difficulty in financing their development programs, even though the completed wells cost an average of $10,000 to $12,000 each, and are completing close to 50 percent of the new wells.

Majors accounted for 47 of the new producers the past week, and are losing ground in their campaign to equalize well density with the independents. Both groups of lease owners are drilling up tracts having sand conditions of a second and third grade rating.

Sinclair Prairie Oil Company accounted for 18 of the flowing wells added the past week. This company has been setting the pace on completions for several months, and early this month was granted permits to drill 75 additional tests. Permits were authorized to drill 24 new wells on its Mayfiield Company 374.74-acre lease, Smith County, thereby increasing the total number of wells to 54 on the property, while 16 new tests were approved for its A. A. King 366.7-acre lease "A", P. W. Warraner Survey, Gregg County. The latter will have 53 wells when the new campaign is completed.

Gulf Production Company and Magnolia Petroleum Company each completed five wells the past week. The latter has six rigs in operation; derricks up for seven tests, and locations for 16 additional tests.

Eight of the new producers failed to register a natural flow, and initial gauges were determined by pumping on four, while the remainder were swabbed.

Standard Will Test Its Kernell Acreage

Los Angeles.—Perhaps the most important location notice filed during the past week was Standard Oil Company's Widgeon 1, wildcat test to be drilled in Section 1-25s-23e, Kernell district, Kern County. The well will be drilled 1980 feet south and 1980 feet west from the northeast corner of Section 1.

Standard has had the Widgeon Gun Club property under lease for several years and, although rumors concerning Standard's intention to drill have been consistently circulated for the past six months or more, this is the first definite move toward developing these holdings. It is reported that if subsurface conditions are as favorable as anticipated, other wells will be drilled immediately, at such intervals on surface contours as to outline the structure and permit organization of a unit plan of development.

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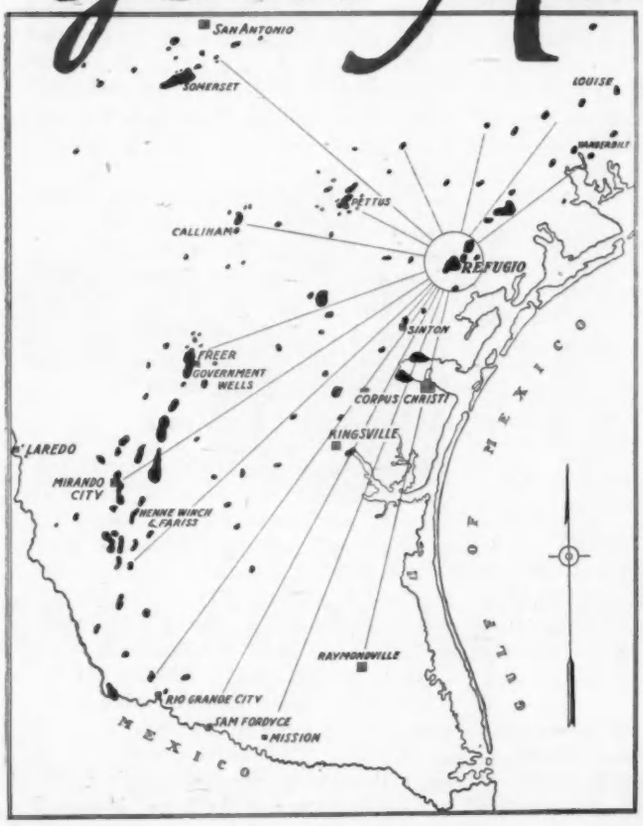

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Michigan Association Against State Compacts

Mt. Pleasant, Mich.—Following a study of the interstate compact, the directors of the Oil and Gas Association of Michigan, March 6, passed a resolution "that this organization go on record that no laws be passed that will restrict Michigan oil development at least until such time as Michigan petroleum becomes a factor in interstate commerce." The resolution was forwarded to Governor Frank Fitzgerald.

In the preamble of the resolution the directors said that virtually all of the suggestions in the compact for conservation and operation now are covered by Michigan statutes. "The estimated demand of crude oil necessary to cover petroleum requirements of the state is at least 85,000 barrels per day, and until the production of crude oil exceeds that amount, Michigan will not be a true factor in interstate commerce," the resolution reads.

Chain Tax Bill to Be Heard by Texas House

Austin, Texas.—The Texas House of Representatives last Friday voted 81 to 33 to print on minority report the Lindsay chain store tax bill. The bill, which had been prepared by State Tax Commissioner R. B. Anderson at the instance of the governor, had been killed by the House Committee on Revenue and Taxation. The bill would provide gradually increasing rates of taxation based on the number of stores in a chain. The maximum tax would be on stores in chains of 200 or over, and would range from nine twentieths of one percent of the excess of gross receipts over $25,000 to thirty eight twentieths of one percent on gross over 2½ millions. The tax bill would include filling stations, as it includes two or more stores "operating under a common trade name."

Wood-Callahan Given 900 Barrels Per Day

Los Angeles.—Daily allotment of the four wells completed by Wood-Callahan Oil Company in the central portion of the Mountain View oil field under an operating arrangement with National Oil Company amounts to approximately 900 barrels of oil a day.

These four wells are capable of producing at the rate of 5000 barrels daily if permitted to flow wide open, but under the state-wide oil curtailment program, officials of both companies are obliged to observe the rules and regulations governing conservation.

Three of the wells were brought in on the 28-acre National lease and the fourth on the 40-acre Cowan parcel, which had previously been prospected without commercial results by Shell Oil Company. The Cowan lease was acquired by National Oil and Wood-Callahan the old well being redrilled from a depth of 3000 feet to a point below 5700 feet. It came in for an initial yield of 1500 barrels daily and is proving to be one of the consistent producers in the field.

Several months ago, National Oil and Wood-Callahan took over a 40-acre piece in the Edison district, five miles east of Mountain View, and when offsetting wells are drilled, the combination expects to protect this acreage from possible drainage.

New Wildcat Will Be Drilled Near Corning

Los Angeles.—Apex Drilling Company, a recently organized concern, with offices at Sacramento, California, has announced its intentions of drilling a well on the Flood property, Section 14-24n-3w, Corning area, Tehama County. No footage location has been filed but it is understood that operations will be started in the near future.

This location is near the town of Corning, about 15 miles south of Red Bluff, in an area where several of the major operators hold extensive blocks of acreage under long term, low royalty leases. The Texas Company probably is the largest holder, with between seven and eight thousand acres under lease in the Hooker Hills district, located about three or four miles north of Red Bluff, and slightly smaller holdings in the Tuscan Buttes area, about 10 miles to the east. Other companies holding large leases in the northern end of the Sacramento Valley include Standard Oil Company, Ohio Oil Company, and Barnsdall Oil Company.

Rosecrans Field

Los Angeles.—After coring from 150 to 200 feet adidtional Gordon zone in his Gray 1 situated on the north flank of the Rosecrans oil field, A. N. Macrate intends to make a production test. A water shutoff was obtained recently with water string set to 6215 feet, bottom of the hole at 6244 feet. The well now is coring below 6300 feet.

Montana Conservation Board Releases Report

Helena, Mont.—A comprehensive picture of Montana production and storage is given in the first annual consolidated report released this week by the recently created Montana Oil Conservation board here.

Montana production for the year totaled 3,611,761 barrels from 1353 wells on production. Of this quantity, the state consumed 1,582,900 barrels, Canadian refineries took 1,701,818 barrels, and producers marked 19,829 barrels to Wyoming and Minnesota.

Producers had 73,372 barrels in storage at the close of the year 1934, as compared with 84,637 barrels at the close of 1933, a decline of 10,905 barrels. Pipe line companies had 309,913 barrels in storage at the end of 1934, as compared with 628,382 barrels for the close of the preceding year, a drop in storage of 318,469 barrels.

The 21 refineries active in Montana during 1934 received 1,491,044 barrels of Montana crude and 1,203,083 barrels of oil from Wyoming. Of this quantity, the refineries processed 1,425,625 barrels from Montana and 1,191,498 barrels from Wyoming. The refineries had in storage at the close of 1934, 314,662 barrels of crude, as compared with 230,068 barrels at the beginning of the year, an increase of 84,594 barrels.

Oklahoma Activity Shows Large Increase

Tulsa.—Oklahoma operators had a large week in the completion of 35 oil wells with combined initial production of 73,417 barrels, for dry gas wells with combined initial volume of 10,750,000 cubic feet and 14 dry holes, a total of 56 completions as compared to 30 the preceding week. Drilling footage was more than doubled when the 56 wells accounted for 144,001 feet of which 262 feet were in two old wells. Wildcat completions resulted in three dry holes and 11,588 feet of drilling which is included in the above figure.

Osage County topped the list in new work with 13 first reports, Pontotoc was second with nine; Noble and Okmulgee counties had four each, Carter, Kay, Muskogee and Pottawatomie counties, three each; Creek, Hughes, Logan, Okfuskee and Seminole counties, two each; and Coal, Grady, Jefferson, Lincoln, Murray, Oklahoma, Stephens, Tillman and Tulsa counties, one each; a total of 61 first reports compared to 39 the preceding week.

Tests Started in New Oklahoma City Zone

Oklahoma City.—Phillips Petroleum Company was the first to step out into the newly extended drilling zone to the north of the Oklahoma City pool when it announced location for Durland 1, SW SE SE NE 34-12n-3w. Champlin Refining Company followed immediately with location for Oak Park 1, NW NW SW NW 35-12n-3w. A few days later Phillips made location for Kennedy 1, SE SW SE NE 34-12n-3w. This extension involving more than 1000 acres was made possible by an election held on March 5

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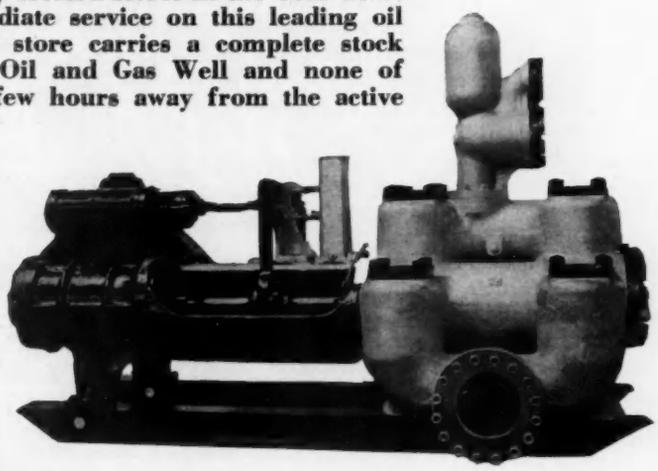
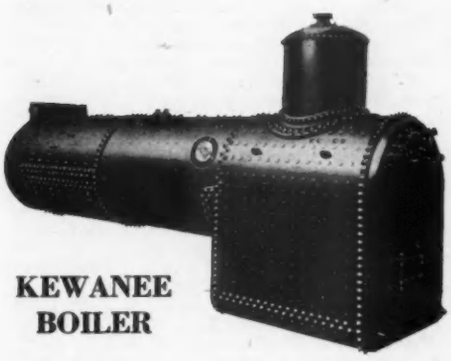
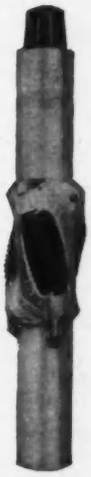


WILSON-SNYDER SLUSH PUMP



KEWANEE BOILER



SIEVERS REAMER

AMERICAN CABLE TRU-LAY *PREFORMED* WIRE LINES

WILSON SUPPLY COMPANY

1412 MAURY ST. **HOUSTON, TEXAS**

OIL and GAS WELL SUPPLIES

Also Exclusive Gulf Coast Distributors for
American Cable Tru-Lay *Pre-formed* Wire Rope; Kewanee Boilers; Sievers Reamer; Driftmeter, Jr.

BRANCHES
Barbers Hill, Kilgore, Goose, Gladewater and Tomball, Texas; Lake Charles, Shreveport and Scott, La.

which brought an apparent close to a bitterly fought battle of many months duration. Oklahoma City residents will vote on a further extension on April 2. If this move is successful drilling will be made possible within 400 feet of the governor's mansion. All of the extension and the proposed extension area is in residential and business districts having a population something over 25,000.

Oklahoma City

Oklahoma City.—Sunray Oil Company and Wirt Franklin Petroleum Corporation completed their Country 1, NE NE NW 1-11n-3w, on the east or downthrow side of the fault in the Oklahoma City pool. This area in which seven tests have been drilled and in which five wells have heretofore been producing, is known as the Fault Line Zone. Top of the Simpson formation was logged at 6120 feet and six-inch casing set at 6254 feet with total depth at 6394 feet from which the well flowed 1475 barrels in 24 hours and was estimated to be making about 2,000,000 cubic feet of gas. According to the present interpretation of conditions in this area, the fault dies out from a throw of approximately 2000 feet farther to the south to nearly nothing at the north end of the pool, permitting Wilcox sand to swing around on the east or downthrow side at depths which are not greatly different from those on the other side of the fault plane.

South Burbank Pool Development Plan Expires

Tulsa.—Operators of the South Burbank pool of Osage County met here during the week to discuss future development plans for the pool. The present plan, which was approved by Secretary Ickes, permitted the drilling of one well to each 40 acres and the drilling of a second well to each 40 acres after March 15, 1935, at which time the approved plan expired. Several operators are said to favor unrestricted drilling in both the South Burbank and Naval Reserve pools but it is believed the majority will favor a regulated plan which would forestall a widespread drilling campaign.

Oklahoma City—The Oklahoma Corporation Commission has set for hearing on Tuesday, March 26, the determination of market demand from state pools during April. The hearing will be held in the afternoon following a morning conference between operators and the proration staff.

Old Carter County Pool Yields Large Gas Well

Ardmore, Oklahoma.—After several years of inactivity the old Wildcat Jim area 21 miles northwest of here in northwestern Carter County seems due for a play on the basis of a big gas sand penetrated recently by Ed Cox and Jake Hamon at their Fee 1, SW SE NE 17-2s-2w, several locations east of production in the old pool. Sand was cored from 1380 to 1400 feet and a formation tester run but the well blew in and ran wild for 24 hours making an estimated 50,000,000 cubic feet of gas. Operators planned on killing the well to deepen for oil production. Skelly Oil Company recently completed a 180-barrel well at Moore 4. NE SE NW 17-2s-2w, from a sand series between 1400 and 2580 feet. One other test by Skelly passed up the big gas sand and location had been made for a third test. Charles E. Clowe, independent operator of Ardmore and associates were getting under way at Woodworth 1, NW NW NE 20-4s-2w, approximately one-half mile west of production in the old Hewitt pool in the western portion of the county.

Oklahoma Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ATOKA COUNTY—		
Lela May Fitts, Blankenship 1, ne ne nw 19-3s-10e	*	651
COAL COUNTY—		
W. A. Delaney et al, Diamond 1, nw nw se 5-1s-8e	*	2672
CREEK COUNTY—		
Freeman et al, Slyman 1, nw nw nw 25-15n-7e	*	2875
J. E. Crosbie, Marshall 2, nw nw ne 30-15n-8e	¶5-15	3384
Alma Oil Co., Jones 1, se se ne 12-17n-7e	*	3108
Magnolia, Street 10, sw sw nw ne 3-17n-8e	70	1347
Billingslea, Morrison 1-A, sw se ne 25-17n-8e	*	1502
Jackson & Wise, Taylor 3, ne ne se nw 3-17n-10e	*	1716
Dixie Drlg. Co., Walker 5, cw½ sw 21-18n-9e	50	3204
Sinclair Prairie, Ingram 15, nw se ne sw 2-19n-7e (otd 2555) (pb 2561)	11	2799
Samples & Mann, Rintie 1, se se nw se 32-19n-9e (otd 2934)	30	2952
Anthony, Berryhill 1-A, nw nw sw nw 4-16n-12e	¶1½	1797
Ogden, Butler 2, se se ne 16-17n-11e	*	1580
Fortner et al, Holmes 2, ne nw ne nw 5-18n-11e (pb 1279)	4	1624
HUGHES COUNTY—		
Magnolia, T. Walker 1, nw ne se 16-7n-8e	*	3400
JEFFERSON COUNTY—		
Farlyn Oil Co., Seay 29, nw nw se se 3-7s-5w	35	1095
LINCOLN COUNTY—		
Texas Co., C. J. Coyle 2, se sw nw 34-14n-4e	192	3055
LOGAN COUNTY—		
Texas Co., W. C. Denny 3, ne ne se 33-17n-4w	2182	6264
Mid-Continent, Campbell 2, se se ne 33-17n-4w	12,456	6103
MUSKOGEE COUNTY—		
J. E. Rose, Jefferson 2-A, se nw nw nw 33-15n-15e	5	1312
Boyle, Coleman 2, sw sw se ne 33-15n-17e	¶1¼	1428
J. A. Evins, Garrett 1, sw se nw 28-15n-18e	*	651
OKLAHOMA COUNTY—		
Larkin & Warr et al, Katy 1, se nw se se 34-12n-3w	¶26-428	6400
OKMULGEE COUNTY—		
Cuseck, Derisaw 1-A, ne ne se se 30-12n-12e	3	1935
W. B. Pine, Alexander 7, sw sw se se 1-13n-13e	12	1148
Jordan et al, Checotah 1-A, se se ne ne 35-14n-12e	*	2030
Aggis Drlg. Co., Alexander 2-A, cnl sw sw 16-15n-14e	2	857
OSAGE COUNTY—		
Ohio Osage Oil Co., 3, nw ne nw nw 16-21n-9e (otd 2232)	*	2232
Barnsdall, 15, ne se ne nw 30-21n-9e	15	386
Bay Oil Co. & Norbla Oil Co., 1, nw nw nw nw 30-22n-8e (pb 2934)	200	2952
Lewis Prod. Co., 5, nw sw se 9-24n-7e	1056	2596
Lewis Prod. et al, 7, nw ne sw 16-24n-7e	515	2660
PAYNE COUNTY—		
Marathon, Potts 1, csw sw 27-19n-2e (pb 4510)	*	5116
PONTOTOC COUNTY—		
Mexhoma Pet. Co., Stafford 1, nw nw nw 5-1n-6e	*	680
Blackstock Oil Co., Craddock "B" 4, se ne se 25-2n-6e	3744	4282
Fleetborn-Superior, Norris 1-A, se nw ne 25-2n-6e (pb 1910)	60	1913
Magnolia, T. Norris 6, sw sw ne 25-2n-6e	4536	4338
Moore et al, Smith "B" 1, sw se se 25-2n-6e	7080	4315
Moore, George Smith 2, se se se 25-2n-6e	9576	4325
Moore, Wirick 4, nw sw se 29-2n-7e	6360	4071
Blackstock Oil Co., D. Hardin 5, nw se nw 30-2n-7e	13,776	4329
Delaney, Harden 3, nw sw nw 30-2n-7e	5184	4359
Stanolind, Harden 7, se nw sw 30-2n-7e	383	4208
Dixon Oil Co., Walker 1, sw se ne 21-5n-6e	*	2796
Mexhoma Oil Co., Butler 1-A, ne se ne 20-5n-8e	*	1365
POTTAWATOMIE COUNTY—		
Atlantic Oil Co., Foreman 5, cw½ nw ne 18-9n-5e	lcn.	abd.
Texas Co., School Land 1, ne sw nw 16-8n-5e (pb 4060)	85	4069
SEMINOLE COUNTY—		
Mid-Continent Pet. Corp., Harjoge 3, nw sw se 31-7n-8e	4503	4212
Carter, Nichols 1, cs½ sw nw 2-10n-6e	790	4143
Atlantic, Thompson 1-A, sw se se 15-11n-8e	*	3800
STEPHENS COUNTY—		
Crane-Rankin Development Co., Brown 5, se nw nw ne 23-1n-9w	20	2226
Lest Brothers, Crosby 1, sw sw sw sw 23-1s-5w	6	653
E. W. Stevenson, Fee 3, ne sw sw sw 3-2s-5w	¶2	860
Beard & Kobb, Wade 4, sw sw sw ne 11-2s-8w	*	1516
TULSA COUNTY—		
Cook et al, Barber 1-A, sw ne se se 14-17n-12e	¶6	1850
Love et al, Parks 1-A, cse se 25-18n-12e	8	1052
WAGONER COUNTY—		
D. K. Detrich, Escoe 1, cnl sw sw 18-18n-15e	25	1297

*Failures; †Junked; ¶Million cu. ft. gas.

28 New Starts In Kansas Fields

Wichita, Kansas.—The Kansas development picture did not change materially during the week when scouts made 28 first reports and operators completed 18 oil wells with a combined initial rating of 15,014 barrels and seven dry holes. Wildcat completions accounted for 16,696 feet of the total of 70,623 feet of drilling involved in the 25 completions. The results were one small oil well, four dry holes and the deepening a few feet in a wildcat discovery well in Scott County in the far western portion of the state. One old well was deepened 36 feet.

Reno County led in new work with six first reports; Russell and Sedgwick counties had three each; Elk, Greenwood, Rice and Woodson counties, two each; and Chautauqua, Cowley, Ellis, Harvey, McPherson, Rush, Stafford and Trego counties, one each. This was a total of 28 compared to 26 during the preceding week.

Kansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BUTLER COUNTY—		
Bar-Key Pet. Co., Rierson 1, csw¼ 21-28s-4e	45	1751
CHATAUQUA COUNTY—		
Griffen & Bell, Chaffin 2, nw nw se 1-32s-10e	45	1633
Central Oil & Leo Morgan, McKey 1, se se nw 21-32s-12e	*	1437
COWLEY COUNTY—		
Lassen, Ferguson 1, csl se sw 21-30s-8e	90	2181
ELK COUNTY—		
McDonald, Martidge 3, nw nw nw nw 11-31s-12e	*	1102
GREENWOOD COUNTY—		
Shell, Harris 1, ne se se 18-24s-13e	*	1634
McPHERSON COUNTY—		
Marathon, Shingbery 2, sw se se 13-19s-3w	87	3047
Tansel, Newfeldt 2, cs½ se nw 21-21s-3w	266	3421
RENO COUNTY—		
Olson & Shell, Downie 6, ne nw ne 14-23s-4w	3951	3614
Olson Oil Co., Blake 3, csw se 23-23s-4w	299	3370
Olson & Shell, Krehbiel 4, nw ne nw 26-23s-4w	2901	3614
Olson Oil Co., Adkins 4, nw nw sw 35-23s-4w	930	3626
RICE COUNTY—		
Keith et al, Grove 2, ne se nw 29-19s-9w	1016	3251
Shell, Tournear 2, ne nw se 29-19s-9w	1325	3235
Empire, Proffitt 2, nw ne se 6-20s-9w	1609	3248
Sinclair Prairie, Specht 2, se ne se 20-20s-10w (pb 3294)	403	3296
RUSSELL COUNTY—		
El Dorado Ref. Co., Walz 1, se ne nw 29-13s-11w	*	3441
Blair, Fink 1, sw nw se 16-14s-14w	15	3159
Lario O&G Co. & Texas Co., Boxberger 1, nw nw nw 24-14s-15w	552	3259
SCOTT COUNTY—		
Atlantic, Vaniman 1, cse ne (otd 4686)	572	4722
SEDGWICK CONUTY—		
Syndicate Oil Co., Ratzlaff 1, ne nw nw 30-26s-2e	*	3520
Magnolia, Bartholomew 1, se se sw 30-27s-4w	*	4148
Dickey Oil Co., Yaw 2, se sw sw ne 20-28s-1e	777	3117
Magnolia, Robbins 5, sw sw nw se 20-28s-1e	131	3113
Aladdin Oil Co., Lauck 1, se ne nw 21-28s-2e	*	3370

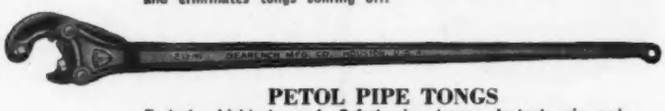
*Failures; †Junked; ¶Million cu. ft. gas.

Franklin County

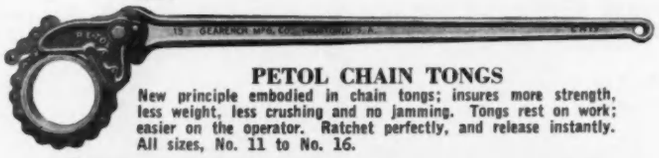
Paola, Kansas.—Glenn Seaborn et al, having completed two good wells with an open flow of four million cubic feet of gas, 2½ miles southeast of Ottawa, now are drilling on their third well on the Nesbit farm. Anderson and Willis recently completed a 500,000 cubic foot gas well in Section 3-16n-20e, Sassman farm, offsetting Seaborn on the east. The same parties have made a location in Section 3.

Also in Franklin County, J. A. Vanhorn and Son are drilling a test 1½ miles southwest of this new field. The location being on the Markis farm, Section 8-17n-20e. This well is being drilled on a 1200-acre block. Hazen Sears also has over 800 acres blocked in the same territory.

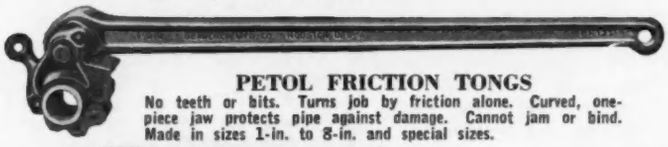
PETOL TUBING TONGS
The World's Favorite Tongs—Safest, Fastest, Strongest made. Well balanced, light, sure-grip. Stabs on, jaws automatically engaging. Cam lock permits turning tubing in either direction, and eliminates tongs coming off.



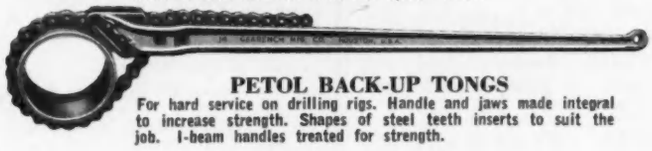
PETOL PIPE TONGS
Fastest, Lightest, and Safest pipe tongs. Instant grip and perfect ratcheting. No crushing. Single handle eliminates mashed fingers. Four edge bits, easily turned or replaced, of high speed steel.



PETOL CHAIN TONGS
New principle embodied in chain tongs; insures more strength, less weight, less crushing and no jamming. Tongs rest on work; easier on the operator. Ratchet perfectly, and release instantly. All sizes, No. 11 to No. 16.



PETOL FRICTION TONGS
No teeth or bits. Turns job by friction alone. Curved, one-piece jaw protects pipe against damage. Cannot jam or bind. Made in sizes 1-in. to 8-in. and special sizes.



PETOL BACK-UP TONGS
For hard service on drilling rigs. Handle and jaws made integral to increase strength. Shapes of steel teeth inserts to suit the job. I-beam handles treated for strength.

5 OF 18 TYPES OF 150 SIZES

GEARENCH MFG. COMPANY
HOUSTON, TEXAS, U. S. A.
"Most Complete Line of Tongs in the World"

perfect threads

AT THE END OF A LONG HAUL . . . .

Patented

Field End Protector

Coupling End Protector

***because* "CLEVELAND" *thread Protectors are* PERFECT**

The FIELD END has a floating thread which is always in compression. Being flexible, it readily conforms to various threads per inch. It is Cadmium Plated. The SHELL is perforated for drainage.

LUGS cast inside the COUPLING END and slots in its flange facilitate tightening and loosening.

NARROW FLANGE prevents jars and side slaps in transit.

EXTENSION beyond end of theard acts as protection before application.

SEND FOR SAMPLE

THE CLEVELAND HARDWARE & FORGING CO.
3270 EAST 79TH ST.
CLEVELAND, OHIO

East Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Jack Apple et al, Kangerga 1	600	3640
Atlantic, L. J. Pinkston 12-A (87-ac)	9300	3695
E. J. Pinkston 3-B (24-ac)	9200	3689
W. E. Brown et al, Frederick 2 (7.06-ac)	480	3615
Champlin & Bass, Inc., J. R. Alford 3 (6.95-ac)	7000	3784
O. R. Cooper et al, Deason 2	3600	3684
Crabtree-Jeffries & Carl Estes, Giles 7 (32.57-ac)	580	3728
R. H. Dearing & Son, E. L. Pinkston 4 (30-ac)	350	3595
East Shore Oil Co., Tom Fox 8 (40-ac)	5600	3703
FHE Oil Co., M. L. Thompson 4 (15-ac)	9000	3745
Ralph E. Fair & Lucey, B. F. Maxwell 12 (87.41-ac)	7000	3758
GBR Oil Corp., L. Harmon 12 (26.87-ac)	8800	3818
W. B. Hamilton Pet. Co., L. A. Gambrell 11 (54.7-ac)	5500	3675
W. B. Hamilton & Jenkins Bros., Camp 7 (30-ac)	960	3700
Harry Hanbury et al, M. L. Thompson 4 (10-ac)	9500	3750
Humble, R. E. L. Silvey 49-A (458.97-ac)	8400	3739
J. E. B. Sneed 12 (104.73-ac)	8000	3735
F. F. Wooster 7 (50-ac)	8500	3776
Hunt Prod. Co., W. R. Fair 14-B (138½-ac)	7800	3728
Illinois Oil Co. (was Ajax), Mayfield-Shell 18 (197.1-ac)	8000	3770
Mayfield-Shell 26 (197.1-ac)	†	1900
International Oil Co., L. J. Pinkston 4 (21½-ac)	8600	3675
Magnolia, John Bell 5 (32-ac)	8400	3811
Marathon, D. Ledbetter 19 (212.48-ac)	8500	3655
R. G. Mason 14 (103.53-ac)	3600	3639
E. E. Moores 25 (201.4-ac)	5000	3730
M. H. McMurrey, Tr., G. A. Turner-Gulf 10 (83-ac)	5400	3837
W. A. Pounds & B. G. Byars, L. Jackson 2	5200	3824
W. S. Randall Oil Corp., T. O. Wright 2 (1½-ac)	8500	3705
B. H. Rogers et al, H. C. Maxwell 8 (26-ac)	7000	3768
Sal-Mar Oil Corp., J. R. Irion 1 (20-ac)	5400	3764
Sells Pet., Inc., Georgie Moore 1 (10-ac)	7200	3859
Sinclair Prairie, A. S. Jarvis 11-B (106.9-ac)	7600	3713
F. B. Wilson 13 (124-ac)	10,400	3647
F. B. Wilson 14 (124-ac)	9600	3662
F. B. Wilson 15 (124-ac)	9400	3668
J. B. Wilson 9 (65-ac)	9500	3630
Dora Wright 25 (152.1-ac)	8800	3745
Dora Wright 27 (152.1-ac)	9000	3739
Dora Wright 28 (152.1-ac)	9000	3729
R. G. Wright 17 (107.62-ac)	8500	3681
Texas Co., First State Bank 16 (160-ac)	6000	3769
Texas-Jersey Oil Corp., W. P. Keeling 3-B (1-ac)	5000	3793
KILGORE AREA—		
J. Beren et al, R. Jones 1 (33.28-ac)	2000	3671
F. H. Brown-H. E. Oliver & Tide Water, Hindman 8 (22.89-ac)	7000	3627
Cordova-Union Oil Corp., C. O. Christian 7 (36-ac)	9200	3702
Gulf, H. C. Alexander 26 (209-ac)	8000	3595
C. E. Alexander 10-B (99.93-ac)	5600	3644
R. H. Long et al, M. Kennedy 1-A (25.86-ac)	120	3620
Magnolia, Jessie Blackman 5 (19.91-ac)	11,000	3630
Navarro Oil Co., R. N. Brightwell 19 (113.08-ac)	10,000	3659
Reserve Dev. Co., T. B. Blackman 5-A (20-ac)	4500	3629
Shell, M. H. Bivins 10-B, (90.87-ac)	7300	3637
W. P. Moore 16 (140-ac)	9000	3727
Sinclair Prairie, M. T. Cole 43 (666-ac)	3500	3582
M. T. Cole 44 (666-ac)	4500	3590
M. T. Cole 54 (666-ac)	6400	3668
M. T. Cole 56 (666-ac)	4000	3652
A. A. King 8-B, Tr. 3 (90¾-ac)	90	3438
Tide Water, M. G. Barton 23 (194-ac)	10,400	3610
J. C. Tippett et al, Henry Williams 2 (1½-ac)	500	3676
Weaver-Crim Corp., Ben Peterson 7 (60-ac)	11,000	3610
LONGVIEW AREA—		
Alco Royalty Co., A. N. King 4 (24-ac)	10,300	3635
O. C. Bailey & Trimble, Geo. Jones 7 (15-ac)	9000	3630
Bond Oil Corp., A. J. Tuttle-Agnew 1 (1 38/100-ac)	9400	3634
Bonds-Dillard Drlg. Co., D. Meyers 9 (41.51-ac)	9500	3576
L. C. Collins-Gray & Wolfe, C. Fisher-Shell 4 (133.22-ac)	8200	3448
Cox & Jake Hamon, Ed. Lacy 10 (50-ac)	11,000	3574
Eastern Texas Pet. Co., D. A. Fleet 2 (112-ac)	500	3602
Empire G&F Co., L. A. Jeter 16 (121.53-ac)	9500	3563
FHE Oil Co., E. W. Clements 4 (10-ac)	9300	3590
Gulf, F. M. Fonville 12 (100-ac)	10,400	3555
J. C. Judge 68 (518.3-ac)	8800	3512
W. A. Ray 12 (813.73-ac)	480	3622
Humble, W. R. Hughes 36 (245.6-ac)	8500	3709
Magnolia, L. J. Everett 21 (166.96-ac)	9000	3636
H. L. Foster 16 (101.41-ac)	9100	3598
Elmira Magrill 4 (22.74-ac)	7500	3668
Oils, Inc., A. J. Sanders 12 (73.63-ac)	6800	3604
Red Irion Drlg. Co., B. F. Phillips 1 (23-ac)	7000	3613
Roeser-Pendleton, Inc., A. Christian 5 (31-ac)	9000	3624
Shell, E. G. Richey 23 (167.38-ac)	7500	3597
Sinclair Prairie, Mary Lawson 18 (84.19-ac)	8300	3548
J. R. Williams 11 (82-ac)	12,000	3547
J. R. Williams 12 (82-ac)	11,000	3545
J. R. Williams 13 (82-ac)	11,400	3560
Stanolind, Geo. Jones 4 (20.35-ac)	8000	3678
Geo. Jones 5 (20.35-ac)	9800	3679
Sun & Texas-Seaboard, J. Rollins 15 (87-ac)	8800	3621
Tide Water, J. J. Castleberry 10 (202-ac)	8000	3604
United East & West Oil Co., C. T. Shelton 3 (56.3-ac)	1000	3708
Yount-Lee, Pat Hopkins 11 (100-ac)	9000	3580
J. F. Stuckey-Thrasher 13 (80-ac)	8700	3578
E. M. Whatley 4-B (39.79-ac)	100	3570
VAN ZANDT COUNTY (Van Field)—		
Roy I. Carter & Jennings, S. McGee 4	5	1268
S. E. Miller et al, J. M. Palmer 1	15	1192
Olson-Jenson Oil Co. (Lane-Tex), J. D. Listenbee 2	50	1236
McLENNAN COUNTY—		
Humble, Otto Heitmueller 1	*	1266
NAVARRO COUNTY—		
Wm. C. McGlothlin & R. A. McCarter, H. A. Barnett 1	*	3895
SHELBY COUNTY—		
Cliff Stovall et al, Pickering Lbr. Co. 1, C. H. Patterson sur	*	1555

*Failures; †Junked; ¶Million cu. ft. gas.

Camp Hill Prospects Dimmed by Salt Water

Palestine, Texas.—Upper and lower sand sections in the Woodbine horizon tested by Gulf Production Company's Mary J. Ross 1, second wildcat drilled on the Camp Hill structure, southwestern Anderson County, yielded salt water to virtually eliminate the area as a probable new Woodbine sand field. Favored with an unusually high structural position in topping the Woodbine section at 4749 feet, or minus 4265 feet, Ross 1 was expected to make a well. In anticipation of a Woodbine sand producer the company was prepared to start drilling on about 17 leases in the block so as to forestall expirations scheduled for the last week of March.

Gulf Production Company's Royall & Davey 1, first test on the structure, also found salt water in drilling through the Woodbine horizon topped at 5176 feet, but in plugging back from Georgetown lime at 5969 to 5059 feet scored heavy flow of gas in Sub-Clarksville sand member of the Eagleford shale. A small spray of high gravity oil has since appeared in producing the gas for fuel. Ross 1, located about one mile south of the completed well, apparently missed the Sub-Clarksville sand, but found the Woodbine section 339 feet higher on structure. First sand was logged at 4796 feet, and drill stem test at 4750-4800 feet and again at 4936-48 feet showed an abundance of salt water. In the meantime the company has drilled two shallow tests to the Garrizo sand zone near the 500-foot level, and is attempting to make oil producers of each.

The Freestone County wildcat of Simms Oil Company and Clark and Cowden, Dallas, on the W. H. Goolsby 50-acre tract, J. A. McAnulty Survey, about four miles east of Teague, was rated as a failure late last week after coring brackish sand in Woodbine section topped at 4377 feet, or 3941 feet below sea level. In southeastern Navarro County, Wm. C. McGlothlin and R. A. McCarter's H. A. Barnett 1, situated on the Syam prospect, has been abandoned at 3895 feet. Woodbine sand, topped at 3520 feet, carried salt water.

Production gauge on Amerada Petroleum Corporation's H. Berk 1, which promises to widen the Cayuga field's oil area across the Trinity River into Freestone County, has been delayed by clogged tubing. It is showing oil and gas from Woodbine sand at 4019-25 feet.

Crawford Petroleum Company's Vol DeLong 1, wildcat producer on a secondary fault zone southwest of Mexia, Limestone County, has developed a light spray of oil with a decrease in salt water. The well was completed February 17 making 640,000 cubic feet of gas and salt water from Woodbine sand at 2772-91 feet, with the hole bottomed in shale at 2807 feet, or 2285 feet sub sea. The volume of gas soon dropped to 200,000 cubic feet daily, and has remained fairly constant, with 90 pounds casing pressure, according to David J. Crawford, president of the company. Plans are to drill another test in the area.

Exploration of three or more of the wildcat blocks assembled recently in Van Zandt County by independents will likely start within the next three months. J. B. Foster, Sioux City, Iowa, and associates plan to start up shortly on a deep test to be drilled in the Myrtle Springs area, with tentative location in the southeast corner of the Brencher 98¾-acre tract, David Clapp Survey, about five miles southeast of Wills Point. This project is a short distance north of Guy Manning and W. H. Carlin's Howell-Owens-High 1, Wm. H. Bunch Survey, which was abandoned in January, 1934, at 4706 feet after reporting showing of gas in upper Woodbine section topped at 4165 feet. American-Liberty Oil Company, Thompson et al plan to drill their jointly owned block situated south of Canton, and two tracts near their location have been acquired by Gulf Production Company for a cash bonus of $15 per acre. The drilling of a Woodbine test is involved in a block being assembled due west of Wills Point, while another group plans to drill on a block situated immediately northeast of Foster et al's Myrtle Springs project.

Territory to the south and southwest of Tyler stands out as a popular area with the majors. The St. Louis community, center of the activity, is to be tested by R. L. "Bob" Peveto and V. E. Howze, who have made location in the northwest corner of the T. J. Watson 77-acre tract, Oliver Anderson Survey. Sun Oil Company, Humble Oil & Refining Company, H. L. Hunt et al hold considerable lease protection. Humble Oil & Refining Company is reported to be paying up to

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If the bit becomes stuck the raising of the drill pipe will disconnect the clutch mechanism, the continuous rotation in the same direction will tighten the loose tool joint in the drilling string and at the same time will uncouple the left handed coarse thread from its lower sub, permitting the recovery of the drilling pipe.

More than one of these tools can be used in one string so adjusted that each will trip at different intervals. The use of this tool may save the price of the entire drilling string in avoiding a costly cutting job.

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$10 per acre for the few remaining leases available between Tyler and its Mount Sylvan block, which is to be tested within a few months. Sun Oil Company has made location for a Woodbine sand test on its Chapel Hill block, situated in eastern Smith County, and about four miles west of the southwest corner of Gregg County.

Contract for the drilling of two wildcats in Bowie County in the Old Boston area is reported to have been assumed by A. L. Wills, Texarkana, and others is assembling a block of about 18,000 acres. The first project is scheduled for the Irene Parsons tract, W. B. Hawkins Survey, while the other is likely to be drilled on the Talley farm, Francis Sithe Survey.

27 Suits Filed for Moving Excess Oil

Austin, Texas.—Attorney General McCraw has launched an attack against shippers and truckers moving excess oil and products by truck.

During the past week Assistant Attorney General W. J. Holt has filed 27 separate suits against oil operators, alleging that they are moving oil by truck without Railroad Commission tenders. In each instance the operator of the truck was also named a defendant, and penalties of $1000 per day are sought.

Holt has received some 200 complaints upon which he plans to file suit as rapidly as the petitions can be prepared. Most of these complaints have been turned in by members of the State Highway Patrol.

Important Extension Made in Young County

Wichita Falls, Texas.—Strawn sand horizon in the Knox-Manning field, situated in central east part of Young County, scored an important extension to the west when Chas. E. Knox, Graham, Texas, and associates' W. B. Harrison 1, near center of 200-acre lease in northeast part of F. Jaime Survey, A-157, swabbed 11 barrels hourly from sand and shale zones at 2702-33 feet and 2757-58½ feet. It is about one mile due west of the field, which produces from the 2700-foot level, and also from lime at 3800 feet.

Lindsey Drilling Company and Cozart's Marshall Morgan 1, Jeffery pool, situated about three miles northwest of Graham, is reported to have topped the Ellenberger lime horizon at 4745 feet. It was coring below 4750 feet, according to late reports. The well failed to make a commercial producer in the 3800-foot lime, although considered a proved location. The Ellenberger limestone is the deepest known producing horizon in the district.

Cash consideration of $20,000 was paid by the FHE Oil Company, Fort Worth, in acquiring J. D. and J. H. Hardegree's F. Brazina 1, a semi-wildcat producer in process of completion near Megargel, Archer County, and a 50-acre strip lease. The well is estimated at 50 barrels daily, having developed hole full of oil from sand at 1431-34 feet, with Gunsight lime section at 1426-30 feet. The well is in the northeast corner of the east 50-acres of west 100-acres of the east one-half of T. E. & L. Company Section 2410.

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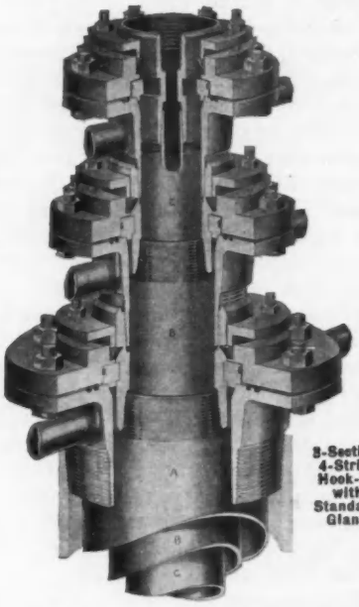

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Five New Oil Wells In Texas Panhandle

Pampa, Texas.—An aggregate of 2085 barrels of oil and 98,900,000 cubic feet of gas production was added by the Texas Panhandle last week through the completion of five oil wells and three gassers. There was one failure, a semi-wildcat in Wheeler County, also listed as a completion.

The prolific oil area in western Wheeler County is beginning to widen along a southeast trend. Skelly Oil Company's D. E. Johnson 1, NWc S½ Section 47, Block

Texas Panhandle Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Hagy-Harrington & Marsh, H. Barnard 3	¶37	2731
Phillips, E. Cooper 1	265	3055
Texas Co., J. K. Quinn 5	275	3105
COLLINGSWORTH COUNTY—		
Trans-Mississippi Corp. (Anderson-Kerr), G. Bell 1	*	2216
GRAY COUNTY—		
Shell, B. E. Finley 3	230	3097
Skelly, G. H. Saunders 1-B	100	2848
Stanolind, Wm. Jackson 5	45	3125
Skelly, H. Schafer 22-E	375	3265
HUTCHINSON COUNTY—		
Phillips, Wm. Yake 4	40	2892
Harry Stekoll et al, J. A. Whittenburg 6-B	250	3075
J. R. Phillips et al, Moore-Langdon 2	500	3035
Gulf, J. A. Whittenburg 6-B	225	3043
Texas Co., J. W. Moore 2	195	3125
MOORE COUNTY—		
Texoma Nat'l Gas Co., Taylor 1-B	¶15	3399
POTTER COUNTY—		
U. S. Bureau of Mines, Lee Bivins 2-A	¶12	3543
WHEELER COUNTY—		
Carver Drl. Co., C.R.I.&P. Ry. 1	*	2214
Johnson et al, J. W. Grogan 1	¶68	1560
Skelly, D. E. Johnson 1	880	2460
Texas Co., P. M. Keller 6	¶3.9-410	2530
Skelly, O. L. Derrick 12	135	2500
Texas, W. B. Bush 2	1500	2504
J. S. Carwile 4	500	2533
Underwood et al, E. J. Roach 1	¶53	2153

*Failures; †Junked; ¶Million cu. ft. gas.

West Texas Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ECTOR COUNTY—		
W. A. Black & Sons, W. E. Connell 2	345	3646
Sun, Mrs. L. E. Wright 3	310	4300
FISHER COUNTY—		
Tide Water and Merry Bros. & Perini, M. Howard 1	265	3677
HOWARD COUNTY—		
California Co., G. M. Dodge 2	210	2750
McCULLOCH COUNTY—		
Cardinal Oil Co., White-Baker 3	*	1364
PECOS COUNTY—		
Corvette Oil Corp., Tippett-Humble 8	130	522
UPTON COUNTY—		
TP Coal & Oil Co.-Humble, J. H. Shirk 5-B	135	2453
WARD COUNTY—		
California Co., A. B. Gordon 3	1155	2557
Gulf, Hutchings 37	255	2752
WINKLER COUNTY—		
Fox-Butler & Jefferies, Brown-Altman 1	100	3200

*Failures; †Junked; ¶Million cu. ft. gas.

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The wire line plunger construction in the MILLER allows you to use the longer pump. The new bail on the MILLER is constructed so that wire line and socket can be easily removed without cutting the wire line each time.

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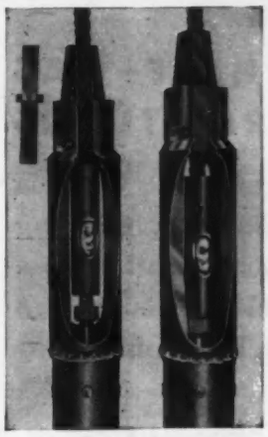
STAR for cutting the sand loose.
SAND PUMP used when well is shot to quickly remove loose material.
BAILER used for quickly picking up cuttings, converts pump into a Bailer.
CHISEL illustrated in Pump.



(Special)
TOOL JOINT BAIL

Left: Illustration of Tool Pin Bail, shown with wire line and swivel ready for lock to be inserted holding wire line to bail. Right: Illustration of bail with wire line and swivel inserted in bail ready to run on socket. This type bail eliminates the necessity of using both a sand and drilling line, as the same swivel is used in socket with tools and connected to the eye bolt and plunger when the sand pump is run.

1. Standard Bail, Rope Socket Neck unscrews, lock comes out so wire line can be removed from pump without cutting the wire line.
2. Bail electric welded to tube.
3. Drop forged eye bolt.
4. Long heavy plunger with ball and seat in bottom.
5. Seamless steel tube.
6. Bottom bushing shrunk to tube and electric welded.
7. Drop forged latch over heavy spring to hold bottom. Set screw for added safety.
8. Four type bottoms STAR, SAND PUMP, BAILER and CHISEL (shown in pump) Cutting edges of Chisel and Star Bottoms hard surfaced.

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24, H&GN Ry. Survey, scored an initial flow of 883 barrels natural from two separate zones of the granite wash formation between 2335 and 2460 feet. The Texas Company's W. B. Bush 2, a northwest diagonal offset, is showing for a larger output, having gauged 1025 barrels of oil in 16 hours from three pay zones between 2380 and 2500 feet.

Renewed effort towards broadening the Osborne-Woodley oil pool, located in southeastern Wheeler County, is now centered on the outcome of two tests. Magnolia Petroleum Company's Jeff Mankins 1, SEc SW¼ Section 54, Block 13, H&GN Ry. Survey, halted operations at 2020 feet to cement 8¼-inch pipe at 1880 feet before drilling into the granite wash horizon. It has an elevation of 2267 feet, and is reported to have topped the lime marker at 1555 feet. Territory to the northwest of the pool is being tested by Triangle Oil Company's O. W. Stewart 1, SWc SW NW Section 73, Block 13, with small flow of gas at 2030 feet. The latter is reported to be about 60 feet higher on top of the lime than Lomyer Oil Corporation's Harvey 1, which carried a good show of oil in drilling through the granite wash horizon to salt water at 2285 feet.

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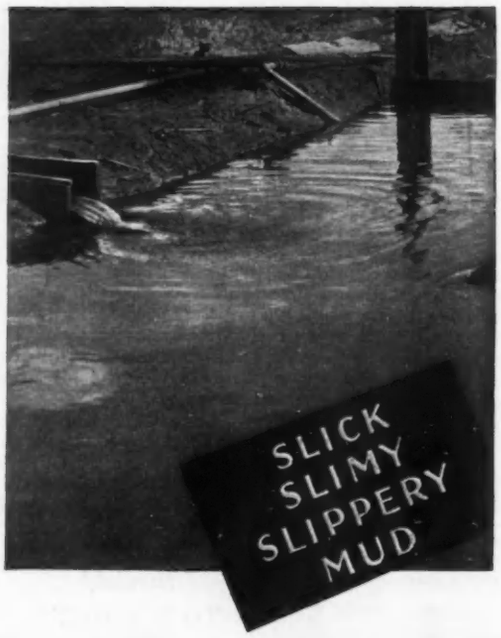

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North Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Bridwell Oil Co., Falls 6-A, blk 8....	*	1235
Continental, Falls 11-B	65	1128
Falls 12-B	55	1124
Falls 13-B	50	1124
Cullum & Alexander, Falls 15, blk 14	55	1127
Fain-McGaha Oil Corp., J. H. Turbeville 1, blk 154	*	1512
Fresno Oil Co., H. O. Prideaux 20..	*	728
Gray Drl. Co., H. Wilmut 1, blk 8...	*	660
Hamer & Scholl, Longley 11.....	50	968
Milroy Prod. Co., H. O. Prideaux 3-B, blk 6	15	648
Perkins-Cullum Oil Co., Falls 143, blk 11	60	1141
Falls 144, blk 5	125	1194
Falls 146, blk 11	50	1156
Pet. Producers Co., Harmonson 13...	10	921
Texas Co., Rhome 1-B, sec 24.....	*	1279
COOKE COUNTY—		
McKesskie & Reese, A. R. Riddle 1, blk 3	*	3109
JACK COUNTY—		
Brazos River Gas Co., York 3.....	40	2943
Ford & Stewart, R. H. Massey 1...	*	120
Miller et al, D. M. Spearman 1, sec 1	*	560
MONTAGUE COUNTY—		
O. V. Beck et al, Davenport 12.....	70	2400
Davenport 13	150	1707
THROCKMORTON COUNTY—		
A. B. Swain et al, A. C. Daws 1, sec 1688	*	1000
WICHITA COUNTY—		
L. T. Burns & Long, 1st Nat'l Bank 25-D, sec 26	10	1646
C. W. Clark et al, 1st Nat'l Bank 6-B, blk 44	50	1241
Geo. W. Cooper et al, Waggoner Bros. 28, sec 8	*	1901
Fresno Oil Co., L. F. Ramming 22..	*	1865
Golding & Cochran, Waggoner Bros. 14-A, blk 23	*	1450
Waggoner Bros. 11-C, blk 17.....	25	1320
Waggoner Bros. 13-C, blk 17.....	3	295
Humble, W. H. Taylor 27, blk 81...	20	840
Panhandle Ref. Co., 1st Nat'l Bank 2-A, sec 26	*	476
1st Nat'l Bank 3-A, sec 26.....	*	565
Pet. Producers Co., 1st Nat'l Bank 69, sec 29	75	1753
Shappell Oil Co., W. L. Hodges 1..	*	1897
E. J. Stump & Lambert, Munger 1-B, blk 30	80	3883
J. L. Swanner et al, Parker 9-B, blk 15	5	1263
WILBARGER COUNTY—		
Jas. B. Baker et al, Waggoner Est. 1-A, sec 35	*	1926
YOUNG COUNTY—		
Jas. B. Baker et al, O. S. Perkins 6, sec 206	100	741
Cato Bros. et al, G. B. Hamilton 4, sec 1393	250	895
Hedrick-Camp Drl. Co., Peters 2...	*	760
King Royalty Corp., J. D. Lowe 2, sec 2244	*	720
W. Krause et al, Trueheart 1, sec 612	*	551
Rathke Oil Co., C. E. Graham 7, sec 3401	*	910
The Texas Co., Finch 5-B, sec 40...	13	681
E. D. Willis et al, E. M. Remington 1, sec 2248	*	705
D. L. Wolf et al, W. E. Baker 1...	*	490

*Failures; †Junked; ¶Million cu. ft. gas.

West Central Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
COLEMAN COUNTY—		
Putman & Shead, C. H. & A. J. Reeves 1	*	1625
SHACKELFORD COUNTY—		
J. L. Douglass et al, J. L. Mathews 1-A	*	750
Hope O&G Co. et al, Reynolds-Lee 2	20	1216
Roeser-Pendleton, Inc.-Conoco, W. I. Cook 51-A, Sec. 61	75	1234

*Failures; †Junked; ¶Million cu. ft. gas.

Coleto Creek Is Extended to the West

San Antonio, Texas.—Coleto Creek field, Victoria County, was extended nearly three quarters of a mile west though the completion of Plummer Drilling Company's E. Terrell 1-C for an initial production of 300 barrels of oil per day via the jet method. It is at 2805 feet, and is 19 feet lower on structure than the nearest producer. The well shows little pressure, while the majority of the producers in the field are high gas/oil ratio producers with high pressure. This test is located in the east corner of the C lease, which is part of a 205-acre tract in the R. Manchola Grant.

Comet Oil Company (Jones and Cargey) completed A. Prybil 1 for 25 barrels per day through ⅛-inch choke. The well is making considerable gas. The total depth is reported at 2810 feet.

Trinity to Be Tested At Darst Creek Field

San Antonio, Texas.—Darst Creek field, Guadalupe County, will be given its first test to the Trinity sand as a result of a deal just completed by Diamond Half Oil Company (H. H. Weinert interests). The well is Lottie Bibbs 1, located in a 209-acre tract in the Joel R. Robinson Survey, on the northwest side of the field.

The well is being financed through contributions on the part of producers and sale of acreage in the block adjoining production.

This location is on the downthrow side of the surface fault. It will cut the fault approximately in the Edwards lime, in order to be on the upthrow side of the fault when the lower formations are tested. The field produces from around 2500 feet in the Edwards lime. The Trinity is expected above 5000 feet.

Frio County

San Antonio, Texas.—Amerada Petroleum Company has commenced the fifth test on its 85,000-acre block in the Pearsall sector of Frio County. The well is Davies and Burke 1, 1320 feet from the northwest line and 330 feet from the northeast line of the B L. Crouch Survey, about 3200 feet southwest of Halff and Oppenheimer 2, a producer. The well is now rigging up to be carried to the 3900-foot Navarro sand where two producers have been completed.

In the Bigfoot area, northeast part of the county, Shoemaker et al's M. Roach Estate 1, Section 139, is coring below 2390 feet. It topped a sand at 2365 feet and has sand and shale breaks to the total depth.

A Standard Rig *On Wheels*

THE No. 49 Star Spudder shown here is the world's largest portable drilling machine, having the capacity of 5" standard rig iron. It is conservatively rated to drill to 4000 feet; the mast capacity with shear poles is 100 tons; and it will easily handle 5500 pounds of tools. The No. 49 Star Spudder can easily be moved completely assembled. It is one of many models and sizes built by us to meet every drilling requirement. Complete information will be furnished on receipt of details as to depth of well and formation to be drilled.

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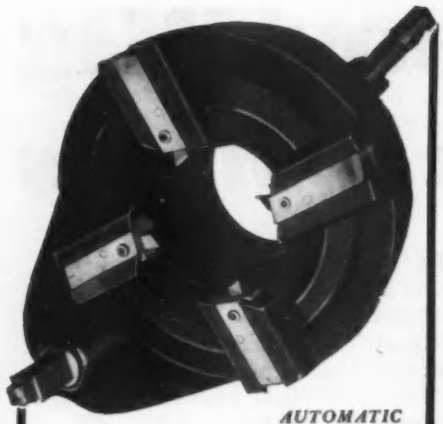

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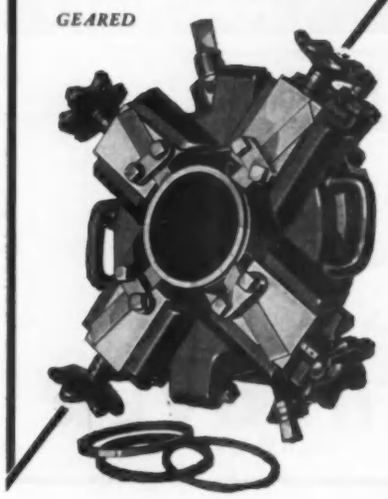

Unusually Large Gas Well in Lopena Field

San Antonio, Texas.—Venture Petroleum Company's Ildefonso Ramirez 1, on the extreme southeast flank of the Lopena field, Zapata County, has been completed as one of the largest gassers ever drilled in South Texas. Although not gauged, it is variously estimated at between 100,000,000 and 150,000,000 cubic feet per day. It is also spraying a quantity of light green, high gravity distillate, firmly establishing the Lopena field as some sort of oil producer.

The well topped the sand at 2084 feet and had solid sand to 2304 feet, where it went into a 20-foot break of shale and shells. Sand was picked up again and continued to 2356 feet, the hole being bottomed on sand. Casing was set at 2295 feet, cutting off most of the upper gas section. Despite the low point on the casing seat, it was a tremendous gasser spraying distillate under a pressure of 1050 pounds on the tubing and 1250 pounds on the casing. This test is located 990 feet from the northeast and northwest lines of Block 1, re-plat of Porcion 18.

Nearly two miles northwest of this test, Nordan & Morris' C. Vela 1, Block 6, re-plat of Porcion 20, topped the sand at 2055 feet and has a similar section to 2316 feet, stopping in sand. Casing was set at 2291 feet and the well is in process of completion. It looks like about the same type well as the Venture Petroleum Company test.

The production is from the Mount Selman, the deepest production thus far found from a geological age standpoint in the Mirando district. The majority of the production is from the upper Jackson, while a little comes from the strata down to the Cook Mountain. The probable prolificness of this formation likely will bring about considerable deeper drilling along trend in effort to pick up Mount Selman sands elsewhere in the district.

The Lopena field's structural condition worked out from surface information and through correlations of the several completions indicates that it will be one of the largest producing structures in the district.

South Texas Drilling At New High Level

San Antonio, Texas.—South Texas drilling activity reached the highest level of the year when the total number of active operations in the territory passed the 300 mark. They were well distributed over wildcat and proved areas with the Jackson trend getting probably the greatest play.

There were 36 completions during the week, 26 of which were oil and gas wells and ten were failures. They provided an initial flow of 9070 barrels of oil and approximately one quarter billion cubic feet of gas.

During the last several weeks, there has been a revival of activity in a number of fields. The new work evidences the desire of major companies as well as independents to drill proved locations in the older areas as well as prospect and develop the new zones. This especially is noticed in Mirando district where a number of tests are being drilled on the outer rims of the well defined structures, the results being 20- to 100-barrel pumping wells at 2000 feet and below. Many of the wells are so low on the structure that they produce considerable water along with the oil.

New fields and new sands in older fields also are getting their share of new drilling. A number of new operations are underway on the extreme south and several locations are active on the north sides of the Greta field of Refugio County, United Production Company being the most active with four drilling wells. Houston Oil Company is following suit with four active operations on the west side of the old Refugio field, where a new 4900-foot oil sand is being developed.

Samfordyce, Hidalgo County; Loma Novio, Duval County; West Tuleta, Caesar and Dirks, Bee County; Coleto Creek, Victoria County; Sinton, San Patricio County; Burnell, Karnes County; Minerva-Rockdale, Milam County; Pearsall, Frio County; Byersville, Williamson County; Lopena, Zapata County; Cole (Bruni townsite area), Webb; Cole, Duval County; McNeill, Live Oak County; and others have received extensions to the proved

territory during the last two to three weeks and can be looked to for considerable drilling.

Of particular interest is the finding of deeper sands on present producing structures, an incentive for further deep drilling. Refugio and Cole fields are the best examples of the success of this type of development during the past several months.

Two Large Extensions For Loma Novio Field

San Antonio, Texas.—Two extensions of more than one mile each and completion of two large producers brings the Loma Novio field into the limelight as one of the most important producing areas in Duval County. The probable producing area is still a matter of speculation, in as much as accurate correlation of well logs in the immediate area is difficult.

Frank Gravis' C. W. Hahl SE NE Section 64, one mile due west of the discovery producer, cored a highly saturated sand at 2528-34 feet and set casing without making a drill stem test. The well is approximately one mile east of Government Wells production.

A mile south of this well, and one and one half miles from Loma Novio production, L. & R. Oil and Gas Company's C. W. Hahl 1, SE NE Section 63, topped the sand at 2571 and took a drill stem test at 2571-78 feet where it developed 400 pounds gas pressure in four minutes. It cored deeper, picking up saturation at 2590 feet. It is at a total depth of 2619 feet, still in saturation, and a drill stem test is being made.

Between these two wells and the present production of the field approximately 1000 acres come into the play as virtually proven territory. One mile west of these wells, and just east of the Government Wells field, Magnolia Petroleum Company's Edge-Hahl 1, an old well drilled in the northwest corner of Section 63, showed a little saturation in the Loma Novio sand. It was carried to 4918 feet and abandoned. This well was drilled before the discovery of the North Government Wells field several years ago.

Johnson Brothers' Hubbard 1, 990 feet south and west lines of Section 84, two miles south of the Loma Novio field, is rigging up. This well will throw an important light on the future of the area in this direction.

Eight miles south of the field and on strike with its production, several gas wells have been completed in the Hoffman field in the lower Government Wells sand, about the same level as Loma Novio.

Samfordyce Extended In Two Directions

San Antonio, Texas.—Extensions to the northwest and southeast were provided to the Samfordyce field, Hidalgo County, during the week through completions and showings on drill stem tests.

Hill and Hill, Inc.'s C. E. Smith 1, Tract 3-B, Porcion 41, southeast outpost well, gauged four barrels an hour through ⅛-inch choke, showing working pressure on tubing of 150 pounds and pressure on casing of 225 pounds. It had gas sand at 2744-50 feet, sandy shale 2750-56 feet and oil sand at 2756-60 feet, casing set on the bottom sand.

Skelly Oil Company's Seabury et al 1, Tract 256, Porcion 38, northwest outpost well, apparently will make one of the largest producers in the field. It showed sand at 2766-84 feet, pyrites 2784-86 feet, shale 2786-97 feet, sand 2797-2800 feet. A drill stem test was made at 2780-84 feet on the upper sand, showing 20 fourbles of oil, 80 pounds pressure in six minutes. A drill stem test of the lower section showed 26 fourbles of oil in 20 minutes with very little pressure. Casing has been set.

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San Patricio Wildcats At Critical Depths

San Antonio, Texas.—San Patricio County's wildcats were at critical stages as the week closed. Two had been plugged back and attempts were being made to complete in upper horizons after failing to produce at lower levels.

Heep Oil Corporation's Welder 1-B, south of the Sinton field, plugged back to 5454 feet from 5910 feet and was waiting on cement. Plymouth Oil Company's Welder 2-B, southwest of the field, was in process of completion. The well drilled to 6854 feet, plugged back, sidetracked and drilled to 5386 feet, where casing was set. It is expected to make a gasser spraying distillate. Several miles northeast of the field, Plymouth Oil Company's Welder 1-C set 1291 feet of surface casing. Stanolind Oil and Gas Company's J. J. McMillan 1, about five miles southwest of the field, is reaming at 4200 feet.

Humble Oil & Refining Company's Welder 1, 6000 feet west of the Angelita field, also in San Patricio County, likely will be carried to 7000 feet or deeper if production is not found at a shallower depth. It now is making drill stem test of sand at 5780-99 feet. About one mile north of the town of Angelita, A. E. Masterson et al's W. A. Wurzbach 1 is rigging up.

Caesar Field

San Antonio, Texas.—Luling Oil and Gas Company's B. B. Ruhman 6-B, Block 40, Hodge Survey, in the Caesar field, Bee County, is rated at 100 barrels an hour initial flow through ¾-inch choke. The well topped the Pettus sand at 3059 and is bottomed at 3067 feet, still in sand.

Neversuch Oil Company's Mrs. Rosa Borroum 1, one mile southwest of the field and in the Charles Baker Survey, was 60 feet low on structure and tested salt water with a little oil in the Pettus sand.

Kittrell Field Gets New Well

Houston.—Humble Oil & Refining Company's Shaw 6 in the Kittrell field of Houston County, was completed during the past week at 2001 feet for 24 barrels per hour through a three eighths-inch choke with a tubing pressure of 200 pounds; casing 300 pounds. The well is located 660 feet northwest of Shaw 4 and in the C. McEllis survey.

In Angelina County, Koch & Duffey's L. W. Alberry 1, was shut down at 2020 feet after making a drill stem test from 2012 to 2014 feet, which showed only fresh water with no showings of oil or gas. The well is located near Diboll in the J. A. Prado Survey.

Harris County

Houston.—Cockburn & Frazier's Herman Hospital 1, east of Addicks in Harris County was abandoned during the past week at 7597 feet after failing to pick up any sand in the Cockfield formation.

The Cockfield was topped at 7005 feet, Discorbis Yegua at 7185 feet and the Eponides Yegua at 7287 feet. After drilling 568 feet in the Cockfield formation it tested salt water from 7573 to 7577 feet. Eight cores were taken in the Cockfield formation without picking up any sand.

At South Houston in Harris County, Johnson & Johnson have made location for Fee Land 1, 330 feet south and 300 feet east of the northwest corner of the 20-acre tract in H. T. & B. Survey or approximately 2300 feet east and 1690 feet north of the southwest corner of Survey. At the close of the week the operators were moving in material. The middle of August, 1934, it was reported that Ralph Johnson was blocking acreage in the area of South Houston and it was reported at that time he received permission of the City of South Houston to drill on any city lot, street, alleys, etc., in which the city had any jurisdiction and in turn Johnson was to drill a 6000-foot. The well is located in the city of South Houston.

Brazoria County

Houston.—Brazoria County continues to be the hot spot of the Texas Gulf Coast in leasing. In the area of Anchor, which has been reported from time to time, acreage has jumped to $50 and $70 per acre. A major oil company has entered the play. To the southwest of Alvin another play is in progress. To the northeast of Brazoria, several major companies are leasing land.

South Texas Completions

Company, Well and Location	Init. Prod. Bbls	Depth
BEE COUNTY—		
Mills Bennett, A. J. Silcock 3, ne sec 9, Uranga gr (W. Tuleta) ..	75	3925
Caeser Oil Co., R. E. Miller 3, F. Lewis sur (Caeser)	*	3044
Luling O&G Co., B. B. Ruhman 6-B, blk 40, Hodge sur, (Caeser)	3000	3067
Neversuch Oil Co., Mrs. Rosa Borroum 1, 330 ft nl and wl se 40-ac w½ 1068-ac tr, Chas. Baker sur (Caeser)	*	3160
BEXAR COUNTY—		
Richcul Oil Co., Kohler 1, J. M. Baerrera sur, 150 ft el, 850 ft nl of 88-ac tr (Von Ormy)	¶1/8	1370
Trawalter & Umburn, W. A. Biel 4, James Simpson sur, (Von Ormy)..	1	748
DUVAL COUNTY—		
J. M. Anderson et al, Philp 1, 1460 ft el, 3520 ft sl sur 320 (Cole)...	*	1774
Eckhart et al's Southerland 1, 330 ft nl and wl sw ne sec 188 (N. Kohler)	*	2375
Humble O&R Co., Ruiz Est. 2, sec 553 (Loma Novio)	1100	2816
Magnolia Pet. Co., Brennan Benavides 9, Arispe gr (Cole)	600	2779
Humble-Duval Ranch 4, ne sec 363 (Gov't Wells)	40	2262
The Texas Co. ,C. W. Hahl 4, blk 17, sec 250 (Gov't Wells)	100	2363
M. Vela 1, s sec 42 (Loma Novio)	140	2789
M. Vela 5, s sec 42 (Loma Novio)	960	2745
H. Wendt 2-B, ne sec 43 (Gov't Wells)	10	2282
HIDALGO COUNTY—		
Hill & Hill, Inc., C. E. Smith 1, tr 3-B, Por 41 (Samfordyce)	450	2760
Rogers O&G Co., F. B. Guerra 3, tr 254, Por 40 (Samfordyce)	750	2761
JIM HOGG COUNTY—		
Magnolia Pet. Co., Killam-Martinez 36-A, 330 ft sl and el sec 275 (Henne, Winch & Fariss)	*	4656
Sun Oil Co., E. East 1, 660 ft nl and wl blk 126, Santa Domingo gr	*	3305
JIM WELLS COUNTY—		
Sinclair Prairie O&G Co., A. A. Seeligson 1-A, 386 ft s, 35 degrees 44 ft e No. 1, sec 71, R. P. Haldeman sub in SK&K sur No. 215 (Premont) pb and perf 3210-90 ft and 3360-90 ft	¶50	3976
McMULLEN COUNTY—		
Kennon & Stephenson, H. L. Lark 2, blk 15, E. W. B. Scrugham sur (Jacob)	12	1038
NUECES COUNTY—		
United Prod. Co., M. L. Rivers 2, Chapman Partition (Agua Dulce)	50	4795
STARR COUNTY—		
Tarver & Kennedy, Starr County Cattle Co. 1, blk 6, sec 11, Por 75-76-77	*	710
VICTORIA COUNTY—		
Comet Oil Co. (Jones & Cargey) A. Prybil 1, R. Manchola gr (Coleto Creek)	35	2810
Gulf Prod. Co., Keeran 7, M. de Leon sur (Keeran)	500	5407
Plummer Drlg. Co., E. Terrell 1-C, 330 ft nel and nwl of "C" lease in 205-ac tr, R. Manchola gr (Coleta Creek)	300	2805
WEBB COUNTY—		
Foster, Barnsley, Webster 6, ne sw sec 685 (Carolina-Texas) owdd..	3	3053
Gates Ranch Oil Co., Gates 2, sec 65 (Leaseholders)	¶½	370
Gates 3, sec 22 (Leaseholders) ..	*	399
Gates 4, sec 67 (Leaseholders) ..	*	455
Highland Oil Co., A. M. Bruni 5, sur 7, Arispe gr (Cole-Bruni townsite)	800	3410
Magnolia Pet. Co., C. Benavides 6, sw se sur 661 (W. Cole)	65	2350
WILLIAMSON COUNTY—		
Helvetia Oil Co., O. R. Spreckles 1, 1350 ft el, 650 ft nl 78-ac tr, T. V. Strode sur	*	942
Lanning & Coffield, Walter Heap 2, H. White sur (Byersville)	30	921
ZAPATA COUNTY—		
The Texas Co., Measles 63, Cerrito Blanco gr (Escobas) pb 1240....	50	1695
Venture Pet. Co., Ildenfonso Ramirez 1, blk 1, re-plan Por 18 (Lopena).	¶125	2356

*Failures; †Junked; ¶Million cu. ft. gas.

Chambers County Well Showing for Producer

Houston.—Humble Oil & Refining Company's A. Middleton 1, was flowing 11 barrels of 37 gravity oil with 18 percent basic sediment and water at the close of the week, which gives indications that a new field may be opened in Chambers County.

The flow was through a quarter-inch choke with 1500 pounds on the tubing and 2350 pounds on the casing. At the end of the week the well had not cleaned itself but was making no salt water.

The well was completed at one time at 7050 feet where it made five barrels per hour but was later killed due to the high gas oil ratio. On a core from 7052 to 7055 feet it showed an oil sand and from 7055 to 7062 feet there was no recovery but was thought to be oil sand. From 7062 to 7072 feet, four feet of oil sand was cored and from 7072 to 7078 feet another sand showing oil was encountered. From 7078 to 7088 feet the core showed half oil sand and half shale.

With the bottom of the hole at 7088 feet the operators set casing screen and liner and after washing the well started to flow oil and washwater.

The well is located 466 feet from the south line and 466 feet from the west line in the H. & T. C. Survey, Section 58, Chambers County, being approximately six miles east of Anahuac.

Louise Field

Houston.—Pure Oil Company's Garrett 2, Louise field, Wharton County, was recompleted during the past week after drilling deeper from 5150 feet to 5168 feet to a new sand. The well came in making 172 barrels per day through a quarter-inch choke with a tubing pressure of 365 pounds; casing 198 pounds. Gravity was 25.2 corrected.

The well was originally completed for 65 barrels per day through a twenty sixty-fourths-inch choke with a tubing pressure of 920 pounds; casing 400 pounds. This test is the furtherest south producer in the field.

Matagorda County

Houston. — Cockburn Oil Company has abandoned Hawkins 6, at Sheppards Mott, Matagorda County, due to heaving shale. At the end of the week the operators were tearing down rig to start drilling on Hawkins 7.

Hawkins 6, was drilled to 5803 feet where the operators twisted off the drill pipe in the heaving shale and decided to abandon it at that depth.

Hawkins 7, is located 150 feet northwest of Hawkins 6, in the D. McCarthy, Survey, Matagorda County.

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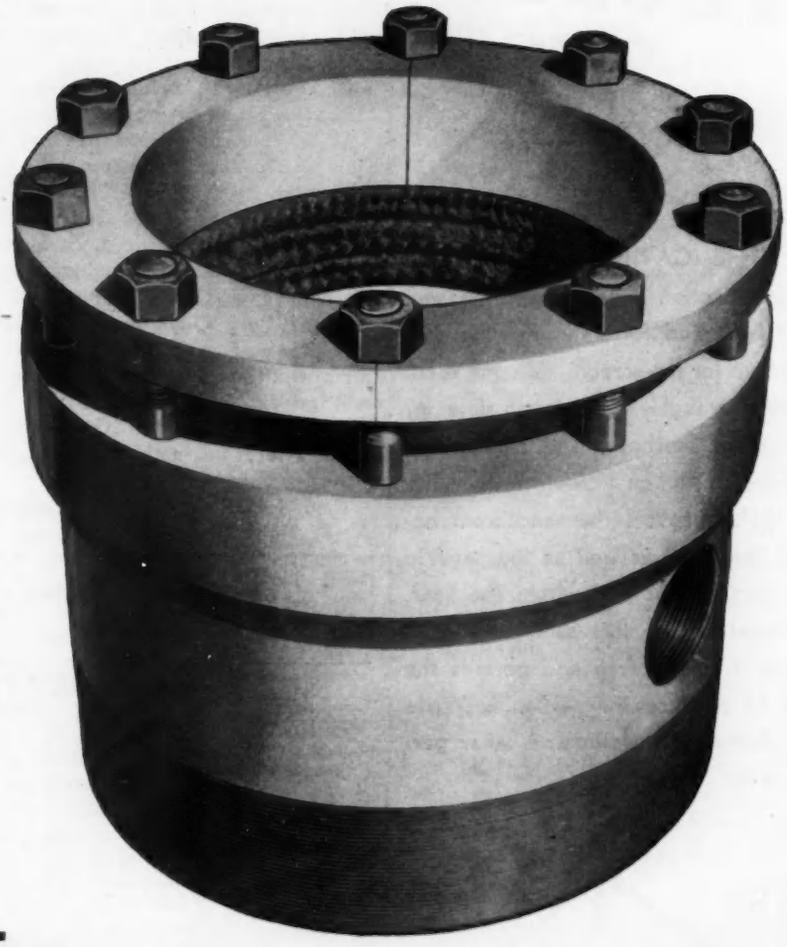

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Largest Dickinson Well Is Completed

Houston.—Humble Oil & Refining company's W. J. Jones 1, in the Dickinson field of Galveston County, was completed during the past week for 40 barrels of 37.5 corrected gravity oil per hour. It is the best well so far completed in the field.

The test was drilled to 8039 feet after topping the oil sand at 8010 feet and seven-inch casing was set. The well came in making the above initial production through a three eighths-inch choke with a tubing pressure of 1550 pounds and casing 1950 pounds.

With the completion of this well, which is located 750 feet north of the north bank of the Dickinson Bayou and center of the east and west line of 7.5-acre tract in the J. S. Sherman Survey and 3000 feet northwest of the discovery well, also being 2000 feet west of Pure Oil Company's Schelor 1, which was completed sometime ago for a small producer, indicates the field will go in the northwest. It is reported that Pure Oil Company will make a location in the area in a short time.

Humble Oil & Refining Company's A. F. Danielson 1, in the same field and in J. Sellers Survey, being 2500 feet southeast of the discovery well, was drilling in shale at 8938 feet at the close of the week after making a drill stem test at a lesser depth and showing only mud. On a drill stem test from 8457 to 8606 feet the well showed 16 thribbles of oil. The same operator's E. Schafer 1, 3500 feet west of the discovery well, W. K. Wilson Survey, was drilling at 8485 feet at the close of the week.

Texas Gulf Coast Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ARRIOLA—		
Republic Prod. Co., Arriola 4, (wo)	290	4227
BARBERS HILL—		
Moody Corp., Barber 1-C	520	5200
Texas Gulf Prod. Co., Kirby C-3, (wo)	373	4575
CONROE—		
Feltex Oil Co., Keystone Mills 2-B	480	5114
Strake Pet. Co., Hammond 4	1315	5163
Sun Oil Co., Foster Lumber Co. 23	1296	5140
DAMON MOUND—		
Esco Oil Co., Wisdon 1-A	*	1427
DICKINSON—		
Humble, W. J. Jones 1	408	8039
GOOSE CREEK—		
Second National Oil Co., A. Berry 1-A, (wo)	100	2574
HULL—		
Guinn, Cannon 1	*	1052
HUMBLE—		
Wilson Oil Co., House 4	150	2895
LOUISE—		
Pure Oil Co., W. Garrott 2 (wo)	172	5168
ORCHARD—		
Gulf Prod. Co., Moore 41	*	6050
RACCOON BEND—		
Humble, J. C. Walton 11	1390	4126
SOUTH LIBERTY—		
Sun Oil Co., Mitchell 24, (wo)	22	973
SHEPPARDS MOTT—		
Cockburn Oil Co., Hawkins 5	*	5803
THOMPSON—		
Gulf Prod. Co., Booth A-23	1392	5250
Humble, Lockwood-Sharp A-32	*	lcn.
Lockwood-Sharp B-28	*	lcn.
TOMBALL—		
Humble, V. Faris et al 1	24	5557
HARRIS COUNTY—		
Cockburn Oil Co., Herman Hospital 1, Wm. Hardin sur	*	7577
Red Bluff Oil Co., Seureau 1, Wm. P. Harris sur	*	6028

*Failures; †Junked; ¶Million cu. ft. gas.

Only One Failure On Louisiana Coast

Lake Charles, La.—The Bosco field of Acadia and St. Landry Parishes lead the list of fields in number of completions during the past week in South Louisiana Coastal region. There were three large producers in the field. For the whole coastal area eight completions were reported and of that number seven tests resulted in oil producers with a yield of 5772 barrels per day. There was only one failure in the entire district.

Bosco Field Is Extended 1000 Feet

Lake Charles, La.—The Bosco field of Acadia and St. Landry Parishes, was extended 1000 feet south when Superior Oil Producing Company completed C. Domingue 1 for 126 barrels of oil per day from the second Marginulina sand.

With the bottom of the hole at 8740 feet, the oil sand was topped at 8728 feet and seven-inch casing set at that depth. The oil was turned into the tanks at 5 a.m., March 14, 1935. The flow was through a 8/64-inch choke with a tubing pressure of 1050 pounds; casing 1050 pounds.

The same operators completed W. V. Larcade 7, and Comeaux 4, for two nice wells. W. V. Larcade 7, made 70.74 barrels per hour through a 14/64-inch choke from the second Marginulina sand which was topped at 8679 feet. Bottom of the hole is 8700 feet. Comeaux 4 made 277 barrels per day from the Discorbis sand. The flow was through a 9/64-inch choke.

The operators have made location for C. B. Hernandez 2, 3 and 6. Hernandez 2 is located 330 feet north and 330 feet west of the SEc NW 34-8s-3e. Hernandez 3 is located 300 feet north and 490 feet west of the SEc NW 34-8s-3e. Hernandez 6 is located 250 feet north and 1010 feet west of the SEc NW 34-8s-3e. The above wells are offsetting Oswego Oil Company's Nouton 1, which was completed the previous week. Oswego Oil Company has made location for Nouton 2, 300 feet at right angles to southwest line and 230 feet from the north line in Section 34-8s-3e. Also Superior Oil Producing Company has made location for V. Prajean 2, 300 feet south and 490 feet west of the NEc SW 34-8s-3e.

Will Drill on Lake Fausse Point

Lake Charles, La.—One of the more important locations announced for the Louisiana Gulf Coast during the past week was The Texas Company's for State Lake Fausse Point 1, 3150 feet south and 3500 feet east of the NWc 35-11s-8e, Iberia Parish. The well is located on the south flank of the dome.

This old dome is one of the abandoned domes or disinterestedly operated domes in the Louisiana Gulf Coast. The field has yielded approximately 11,810 barrels of oil. Since 1928 there has been no activity in the area. This well will be interesting to watch as several of the old abandoned fields in South Louisiana are going to be reworked in the near future.

Gillis Well May Produce Only Gas

Lake Charles, La.—In the Gillis field of Calcasieu Parish, The Texas Company's Nickerson Fee 1, 220 feet west of Union Sulphur Company's State 1 and 50 feet from the bank of the Calcasieu River, Section 12-9s-8w, was reported completed as a gas well making an estimated four to five million cubic feet of gas daily during the past week.

The operators were undecided at the close of the week whether to carry the well on down or not. The bottom of the hole is 6725 feet where oil sand was topped at 6713 feet and 9⅝-inch casing was set at 6709 feet with 2½-inch tubing hung at 6524 feet. On the first 16-hour gauge the well made 7½ barrels of distillate and the estimated gas on a 15/64-inch choke with a tubing pressure of 2410 pounds. The operators let the well blow for a couple of days to see if it wouldn't start flowing.

If this well is completed as a gas well it will make the second discouraging factor in the field. Union Sulphur Company's Buhler 1, 1000 feet southwest of the discovery well, was drilling in broken shale at 7062 feet at the end of the week after failing to pick

Louisiana Coast Completions

Company, Well and Location	Init. Prod. Bbls	Depth
BOSCO—		
Superior Oil Prod. Co., Comeaux 4	277	7840
C. Domingue 1	126	8740
W. V. Larcade 7	1680	8700
EAST HACKBERRY—		
Yount Lee Oil Co., Gulf Land 12	865	5929
LEESVILLE—		
The Texas Co., Leesville 6	1474	3760
LOCKPORT—		
Magnolia Pet. Co., Farquahar 5-A (wo)	*	6482
Farquahar 8-A (wo)	822	6716
ROANOKE—		
Humble, Kratzer 2	528	8671

*Failures; †Junked; ¶Million cu. ft. gas.

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up the producing sand for the discovery well. The producing sand for the field is found around 6730 feet and at that depth the above well cored water sand. The same operators' O. H. Castle 1, 500 feet north of Fohs Oil Company's Castle 1, which was a nice producer, was drilling in shale and lime at 7013 feet and has evidently missed the producing sand that was found in Fohs Oil Company's Castle 1.

Union Sulphur Company has made location for Mayo Reeves 2, 600 feet north of State 2, and 600 feet southeast of Mayo Reeves 1 and 30 feet from the river or 481 feet south and 545 feet east of the northwest corner of the southwest quarter of section 12-9s-8w.

Sixteen Louisiana New Drilling Permits

Shreveport, La.—Sixteen drilling permits were issued last week by the Louisiana Conservation Commission, minerals division. Only two of the permits were for North Louisiana tests, one each in Caddo and DeSoto parishes. The fourteen in gulf coastal Louisiana were divided among the following parishes: Acadia, three; Cameron, two; Iberia, four; Jefferson Davis, three; La Fourche, one, and St. Landry, one.

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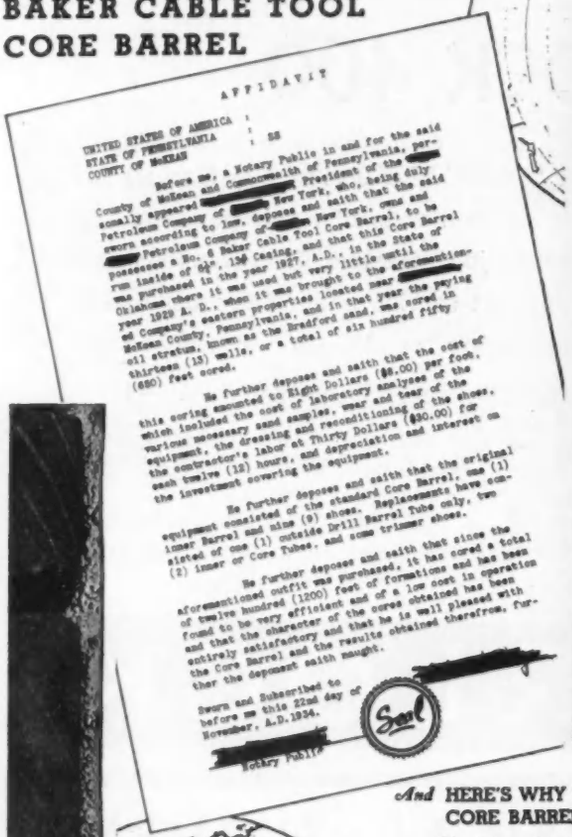
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STATE OF PENNSYLVANIA : SS
COUNTY OF McKEAN :

Before me, a Notary Public in and for the said County of McKean and Commonwealth of Pennsylvania, personally appeared [redacted] President of the [redacted] Petroleum Company of [redacted] New York, who, being duly sworn according to law, deposes and saith that the said [redacted] Petroleum Company of [redacted] New York, owns and possesses a No. 4 Baker Cable Tool Core Barrel, to be run inside of 6¾", 13# Casing, and that this Core Barrel was purchased in the year 1927, A.D., in the State of Oklahoma where it was used but very little until the year 1929 A. D., when it was brought to the aforementioned Company's eastern properties located near [redacted] McKean County, Pennsylvania, and in that year the paying oil stratum, known as the Bradford sand, was cored in thirteen (13) wells, or a total of six hundred fifty (650) feet cored.

He further deposes and saith that the cost of this coring amounted to Eight Dollars ($8.00) per foot, which included the cost of laboratory analyses of the various necessary sand samples, wear and tear of the equipment, the dressing and reconditioning of the shoes, the contractor's labor at Thirty Dollars ($30.00) for each twelve (12) hours, and depreciation and interest on the investment covering the equipment.

He further deposes and saith that the original equipment consisted of the standard Core Barrel, one (1) inner Barrel and nine (9) shoes. Replacements have consisted of one (1) outside Drill Barrel Tube only, two (2) inner or Core Tubes, and some trimmer shoes.

He further deposes and saith that since the aforementioned outfit was purchased, it has cored a total of twelve hundred (1200) feet of formations and has been found to be very efficient and of a low cost in operation and that the character of the cores obtained has been entirely satisfactory and that he is well pleased with the Core Barrel and the results obtained therefrom, further the deponent saith naught.

Sworn and Subscribed to before me this 22nd day of November, A.D.1934.

[redacted]
Notary Public

Seal

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Madison Parish Block To Be Tested

Shreveport, La.—George T. Shaw of Homer, La., who has assembled approximately 150,000 acres in leases in Madison Parish, northeast Louisiana, has assigned a block of approximately 20,000 acres to a group of Tyler, Texas, operators for a 4500-foot test, which, it is understood, is the first of a series of tests to be drilled on Shaw's and his associates' holdings in that parish. The 20,000-acre block on which the first test will be drilled centers in Section 1-17n-12e, and it will test the producing possibilities of the Monroe gas rock and the red beds and, if it is present, the Glen Rose of the upper Trinity, which is productive in the Richland Parish gas field. The block centers about five miles northeast of Tallulah and the acreage lies in the alluvial bottom lands of the Mississippi River. The block is about 30 miles east of the Richland gas field and 18 miles southeast of the East Carroll Parish gas field.

Madison Parish has had only three tests drilled for oil or gas and two of these were shallow holes. The deepest of the three located in Section 24-18n-11e, went to base of the Midway at 3150 feet. Another near the village of Mounds in township 16 north, 14 east, went only to 1665 feet and the other a geological prospect hole in township 18 north, range 13 east, went to 1865 feet.

Two Wells in New Pine Island Extension

Shreveport, La.—The northeast offshoot of the old Pine Island field, Caddo Parish, that recently took the lead in North Louisiana activity after a one-mile extension well was completed, added two oil producers last week, one an 85-barrel daily flowing well and the other a 125-barrel daily pumper.

Two miles north of production in the shallow Blanchard gas field, Caddo Parish, Texas Trading Company completed a Nacatosh sand gasser estimated at one quarter million cubic feet. Hole was bottomed at 952 feet.

North Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Pine Island)—		
S. Meyers et al, Davidson 1, ne se 16-20n-15w	85	2207
Tooke & Reynolds, Levy 2, se ne 16-20n-15w	125	2212
CADDO PARISH (Blanchard)—		
Texas Trading Co., A. T. Curry 1, sw nw 28-19n-16w	¶¼	952
SABINE PARISH (Converse)—		
Helena O&G Co., Graham B-1, ne nw 20-9n-13w	*	2000
C. E. Pugh 1, sw ne 19-9n-13w	*	2030

*Failures; †Junked; ¶Million cu. ft. gas.

Rainbow City Taylor Sand Extended Southwest

El Dorado, Ark.—The Taylor sand producing horizon of the Rainbow City field, Union County, was extended approximately one half mile south and west last week by a pumping well which is making 100 barrels of fluid, 22 percent salt water and 78 percent oil. It was Rainbow City's twenty-first producer in the Taylor sand.

The Camden area, Ouachita County, where a lone producer was completed in Nacatosh sand at 1394 feet several months ago, was circumscribed to the west last week by a salt water hole, offsetting the producer 660 feet in that direction. This gives 600-foot offset failures north, south and west of the producer. Another test, one and one half miles southeast of the producer was also abandoned last week. This leaves possibilities of production only to the direct east as a northeast test a mile and a half away was also a failure. It is understood two tests will be drilled soon to the east.

The west offset test abandoned last week is J. D. Reynolds' Bragg 1, SWc NW SE 25-13-18, which logged an oil sand at 1348-52 feet, oil and water sand at 1358-63 feet, a water sand at 1374 feet, and at 1400 feet and an oil sand and lignite at 1403 feet; elevation was 135 feet.

Bradley Field Test Nears Producing Level

El Dorado, Ark.—Transportation Petroleum Company (formerly Kamon and Neely) are drilling hard chalk at 2335 feet in Red River Lumber Company 1, SW SW 26-19s-25w, 2½ miles southwest of the old Bradley field, La Fayette County, Ark., which produces from the Buck Range (Ozan) at the 2800-foot level.

This test, the owners reported, showed oil or gas in several drill stem tests in the Nacatosh which was logged at 1804 feet; elevation is 252 feet. They reported an oil and gas show at 1913-29 feet and at 1933-47 feet, as well as an estimated five million cubic feet of gas with water at 2176-92 feet and an estimated eight million feet of gas with water at 2196-2205 feet in a six-minute test on a quarter-inch choke. Shale was logged from 2207 to 2252 feet and broken chalk at 2260 feet.

The discovery well of the old Bradley field, abandoned for several years until recently when a 30-barrel pumper was completed, logged top of Nacatosh at 1880 feet; elevation was 253 feet. No production was found in the Nacatosh in that well but production in the Ozan was found at 2804 feet.

The present test may go to the lower Cretaceous.

Arkansas Completions

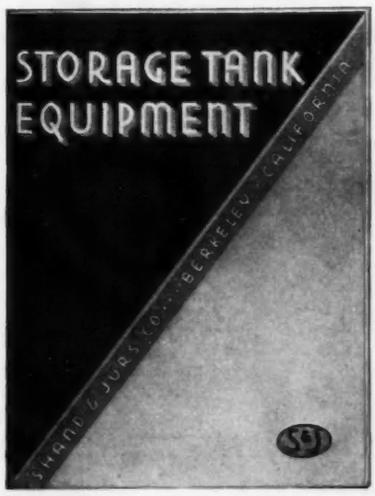
Company, Well and Location	Init. Prod. Bbls.	Depth
OUACHITA COUNTY (Camden)—		
T. J. Gaughan et al, J. Humphrey 1, ne ne 30-13-17	*	1455
J. D. Reynolds, Bragg 1, sw nw se 25-13-18	sw	1405
UNION COUNTY (Rainbow City)—		
H. L. Hunt, Inc., J. D. Gregory 4, sw se 10-17-14	80	3419

*Failures; †Junked; ¶Million cu. ft. gas.

Hastings Test Ready to Complete

Houston.—In the Hastings field of Brazoria County, Stanolind Oil & Gas Company was setting screen and liner on W. J. Miller 1, March 15. The well should be completed over the past week end.

The hole was carried down to 6009 feet where seven-inch casing was set at 5845 feet on top of the saturated oil sand. This well is running a great deal higher than the discovery well.



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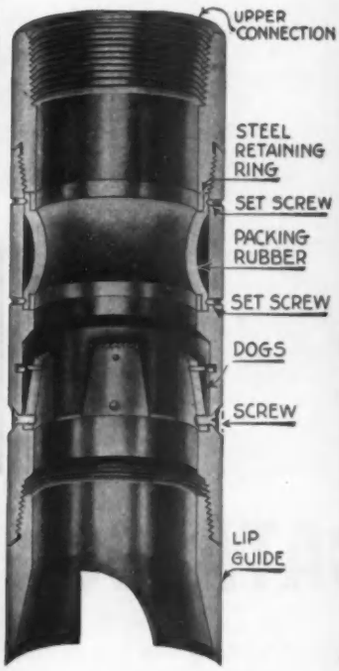

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Cumberland Arch To Be Tested for Oil

Paducah, Ky.—Ada Belle Oil Company has been organized and incorporated in Oklahoma to acquire, explore and develop a large block of leases in western Kentucky and northwestern Tennessee.

While the above fact briefly outlines the aims of Ada Belle corporation formed by R. Otis McClintock, Fred G. Moser and A. I. Levorsen, the first two of Tulsa, and the latter of Houston, Texas, inquiry tells a most interesting story of the ambitions of the incorporators to possibly open a new geologic province in what is termed by many geologists the "Between the Rivers Area," namely, the Cumberland and Tennessee.

Ade Belle Oil Company has assembled acreage in Trigg, Marshall, Lyon and Callaway counties of western Kentucky, and in Stewart county of northwestern Tennessee, and on a line 50 miles long and 10 miles wide along the axis of the so-called Cumberland Arch across which the sands wedge or pinch out and create underground traps for the holding of oil and gas within the area.

Large Florida Block Assembled

Mobile, Ala.—Peninsula Oil & Refining Company which has secured approximately 150,000 acres in leases in Levy County, Florida, for a contemplated early test, has opened offices in Tampa, Fla., with Robert Burns Campbell in charge.

Levy County is located on the Ocala Uplift whose highest point is about 120 feet above sea-level about two miles east of Bronson, the county seat.

In Pinellas County, Fla., Heber Smith of St. Petersburg, Fla., has assembled a block and spudded a test in NE SW 11-32s-16w. Eighteen-inch casing was cemented at 70 feet. He is reported to be using a small standard rig.

Ray L. Estabrook who recently abandoned a wildcat test in Conecuh County, south Alabama, Miller Lumber Company 1, Section 1-4n-12e, at 4831 feet, is planning to drill another test on this block about two and one-half miles southwest of the former location.

Lamar County

Jackson, Miss.—William Burris who recently completed a 20,000-acre wildcat block in Lamar County, Mississippi, northeast of Purvis, the county seat, is moving in materials for Henry Phillips 1, center NW SE 33-3n-14w which will go to at least 3000 feet. Burris was the driller on a wildcat drilled in Lamar County several years ago that had a gas show at the 3000 foot level.

L. B. Mawk has assembled a 15,000-acre block centering in township 2 north, 16 east, Clarke County, east central Mississippi, with a drilling obligation to spud by next April 5. This block is east and southeast of Gulf Refining Company's Long-Bell 1, Section 10-2n-16e, that had a good oil showing in top of the Eutaw at 3692-3700 feet in October, 1931. Top of the Selma chalk is used as a marker in tests in Clarke County.

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To Use Last Chance Gas for Development

Castle Dale, Utah.—Development of the huge potash and aluminute deposits near here held by the Bohn Aluminum Company in association with Ford Motor Company, as a result of the discovery of gas on the Last Chance Creek structure, Emery County, Utah, is planned, though officials of the companies have little to give out for publication at present.

The companies are negotiating with Ramsey Petroleum Corporation for the utilization of approximately 60,000,000 cubic feet of gas daily from Last Chance Creek in the project. Plans call for the expenditure of $15,000,000 and the employment of 10,000 men in the initial development of the mining work.

Ramsey Petroleum Corporation is plugging back in the discovery well, Weightman 1, SW NE SW 13-26s-7e, to 2773 feet where the wildcat gauged 21,000,000 cubic feet of gas daily. Total depth is at 3071 feet with the 5¾-inch string landed at 3000 feet. Hole is believed to bottom about 700 feet above its objective, the Pennsylvanian series.

Operators decided to plug back and save the well as a gasser, believing it impracticable to drill ahead with 700 feet of open hole. In the spring and on the completion of Weightman 1 as a gasser, the Ramsey company will drill a deep rotary test of the structure to explore for oil in the Pennsylvanian and Mississippian series. A string of eight-inch casing dropped at 1986 feet caused the mechanical difficulties which have stopped the drilling of the initial well to the lower horizons. The test showed for four bailers of oil in the Moenkopi lime at 3071 feet.

Acreage on the structure is held by American Oil Corporation of Los Angeles, of which J. W. Weightman is president.

Wyoming Tax Bill Is Killed

Helena, Mont.—A bill to tax oil 2½ cents per barrel that is shipped into Montana was killed in the state senate. Those favoring the bill argued that such a tax would result in a more intensive development of the oil fields in Montana and a greater search for new fields. Opponents of the bill contended that it would result in crude oil being refined in Wyoming and shipped to Montana duty free, closing down the majority of Montana refineries. They pointed out that a good deal of the Montana refining business depends on the manufacture of road oil, and that Wyoming black oil blended with Montana crude is necessary for the processing of road oil. There is little black oil production in Montana.

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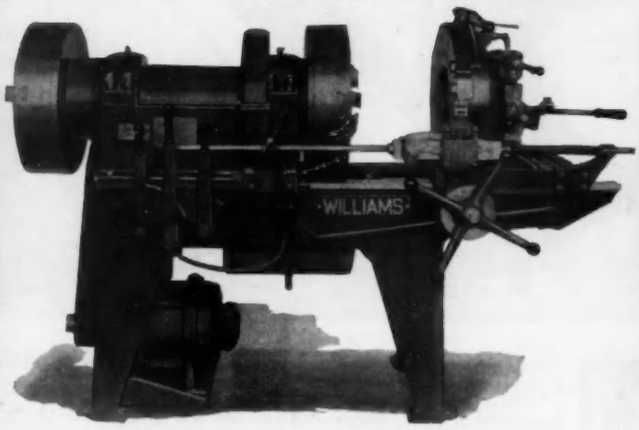

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Cut Bank Townsite Well Disappointing

Cut Bank, Mont.—The well drilled on a town lot here owned by John Banen, mayor of Cut Bank, proved a disappointment in showing little better than a 10-barrels a day producer. The well, Fist et al's Danen 1, Lot 10, Section 12-33n-6w, drilled to 3005 feet and had only 200 feet of oil in the hole from the Cut Bank sand between 2946-80 feet.

An early report from the well said that there was 1100 feet of oil in the hole, and it is believed by operators that the test may have drilled through a crevice and the oil drained away. Operators are now bridging back to 2985 feet preparatory to rigging up pump for production test.

Montana Power Company's O'Brien 1, C SE SE 31-34n-5w, is a near completion, drilling out plug with the 6⅝-inch production casing set at 2752 feet. The test is outside of town limits.

It is reported that Hannah-Porter Oil Company may abandon location for International Harvester Company 1, Lot 7, Section 12-33n-6w, within town limits. At present there are seven other tests active in the Cut Bank field, which report as follows: Askins' Askins 1, Lot 24, Section 12-33n-6w, cementing the 10¾-inch casing at 600 feet; Consolidated Gas Company's Tribal 3, Lot 7, Section 34-35n-6w, spudding at 100 feet; Consolidated's Tribal 4, Lot 8, Section 34-35n-6w, drilling at 700 feet.

Kately's Drumheller 1, Lot 1, Section 10-34n-6w, spudding at 450 feet; Olive Oil Company's Winkler 3, NW NE 35-35n-6w, drilling at 1890 feet; R. C. Tarrant's Connolly 1, NE SE 31-34n-5w, drilling at 1390 feet; and Gardner-Smith Syndicate's Tweedy 1, NE NE 36-33n-6w, a southwestern outpost test, rigging up cable tools.

Sundance to Be Tested Further at Lance Creek

Lusk, Wyo.—The third bench of the Sundance sand, where the largest Salt Creek production is obtained, will be drilled in Ohio Oil Company's Lance Creek test, it was announced this week. The third bench of the Sundance at Lance Creek has not been tested, though two large oil wells in the field have been completed in the first and second Sundance sands.

Ohio Oil Company's Agnes Rholf 2, NE SE 32-36n-65w, is coring at 3740 feet in the second bench of the Sundance, and is showing for an oil well. The test had good saturation in the first bench of the sand.

Buck Creek Oil Company, subsidiary of Continental Oil Company, is cleaning out at 3510 feet after getting 900 feet of water in the Lakota at 3507-10 feet in its Apex 1-A-3, SW NE SW 34-36n-65w, in the Lance Creek field, and will deepen.

Iles Dome

Craig, Colo.—Stanolind Oil & Gas Company's Parkinson 35, SE NE NE 22-4n-92w, Iles Dome field, Moffat County, Colorado, is coring the Sundance, its objective, at 3363 feet and is showing for an oil well. The formation was topped at 3344 feet and the 8-inch production casing set at 3346 feet.

Mountain States Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
GLACIER COUNTY (Cut Bank Field)—		
Montana Power Gas Co., O'Brien 1, se se 31-34n-5w	235	2773
WYOMING		
WESTON COUNTY (Osage Field)—		
Irene Eaton, Government 14, sw ne sw 30-46n-63w	25	1442
COLORADO		
MOFFAT COUNTY (Iles Dome)—		
Stanolind Oil & Gas Co., Parkinson 35, se ne ne 22-4n-92w	1440	3381

*Failures; †Junked; ¶Million cu. ft. gas.

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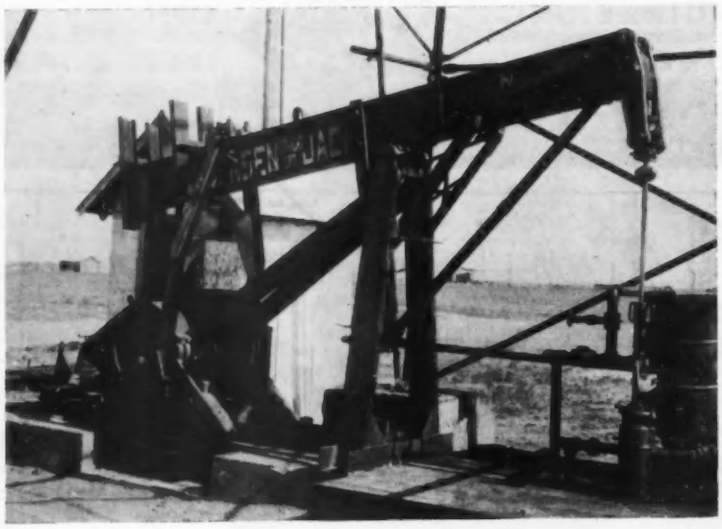

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SEE PAGE 520 CURRENT COMPOSITE CATALOG

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Santa Barbara County Tests Are Disappointing

Los Angeles.—Santa Barbara County came in for its share of activity during the first week in March.

Shell Oil Company's Bishop 1, wildcat test in Section 20-4n-28w, Goleta area, underwent a swabbing test through 4¾-inch liner stuck at 5166 feet. Total depth is 6508 feet and 6⅝-inch casing is cemented at 5136 feet. Considerable fluid was in evidence but recovery was practically all salt water, there being but a trace of oil. A string of 2½-inch tubing has been run to 5136 feet and swabbing will be continued.

East Elwood Petroleum Company's Bishop-Evans 1, outpost well on the extreme northeasterly edge of the Elwood field, also failed to show anything of commercial importance on a production test ending March 8. Depth of this well is 3767 feet, with 6⅝-inch casing cemented at 3677 feet. Operators report considerable "kick," follow-up of the swab almost reaching the top of the derrick at times, but fluid showed 85 percent cut of water with a salt content of 1022 grains per gallon. The well now is standing idle, pending decision on future plans by company officials.

Ortega Oil Company's Williams 1, Section 16-4n-26w, was abandoned as of March 1. This well was originally drilled by Julius Dietzman and created quite a bit of excitement when it blew out from a plugged depth of 3690 feet for an estimated 5,000,000 cubic feet of dry gas. Total depth at the time of abandonment was 4583 feet.

Union Oil to Drill Eight Test At Poso

Los Angeles.--Union Oil Company continues with the orderly development of its S. & M. lease in the Mount Poso field, Kern County. Eight new locations, numbered S. & M. 22 to 28 inclusive, were filed last week.

These new projects will be drilled consecutively, although not necessarily according to number. Union has been keeping one or two rigs busy on this lease, in order to meet legal requirements under which the land was taken. Footage locations for these eight wells are measured from the center of the south line of Section 4-27s-28e, and fall within a 900-foot radius to the north of this point.

Shell Oil Company has three wells on its Vedder lease, and one well on its Vedder-Rall lease, both of which offset Union's S. & M. lease to the south, nearing completion.

Production in this portion of the Mount Poso field is obtained from two zones in the Vedder formation, at approximately 1700 feet in the Upper Vedder and at about 1900 feet in the Lower Vedder.

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Two Big Wells At Playa Del Rey

Los Angeles.—The Playa del Rey extension of the Venice field continues to hold the spotlight of interest, in so far as the operations in the Los Angeles Basin are concerned.

A five-day potential test on Union Oil Company's Vidor 7 was concluded on March 7. Maximum oil production during this period was 8422 barrels per day, according to figures from the oil umpire's office, and gas production was listed at 11,794,000 cubic feet. While no quota has as yet been assigned this well, it has now been beaned back to approximately 3302 barrels.

D. D. Dunlap's No. 1 was placed on potential test on March 8 and production for the first day was 7777 barrels of oil and 8,000,000 cubic feet of gas. This well was completed on February 26, but due to lack of storage and pipe line facilities, it was necessary to keep it beaned well back until the completion of the flow test on Union's Vidor 7.

Another well, Mammoth Oil Company's No. 1, now is about ready for completion. This well is drilling ahead at about 6300 feet in oil sand, the top of which was encountered at 6220 feet. Other oil sand was penetrated above this present zone, which necessitated the cementing of seven-inch casing at 6083 feet. Operator states that a total of 120 feet of well saturated oil sand has been penetrated and is confident that he will obtain a good producer.

Big Ben Oil Company's No. 1 well, located approximately 180 feet north and 350 feet east from the Dunlap well, is being drilled and cored ahead below 6800 feet, still in shale. It is believed that the Nodular shale, the most prominent geologic marker for this district, was penetrated at 6660 feet, but, owing to the burned condition of cores at that point, it is impossible to classify them accurately.

Although it is rather early to attempt to estimate the additional acreage proved by recent completions in this easterly extension area, authorities well informed of prevaliing conditions in the district have stated that the figure might easily run into three to four hundred acres.

Ventura Wildcat Will Test Lower Formations

Los Angeles.—A. N. Macrate, independent oil operator, has completed arrangements whereby drilling operations will be resumed at once in his old Torry 1 wildcat drilled on a portion of the 1300-acre Torry lease south of Oakridge and the Santa Clara River, Ventura County.

This property is adjacent to Union Oil Company's Torry lease. Macrate's Torry No. 1 had previously explored to a depth below 4000 feet and it will be deepened to take in all of the Vaqueros formation and a part of the Sespe to determine what both zones are capable of yielding.

Macrate states a second well will be under way within 60 days on the Riva Ranch 1000-acre lease he controls six miles north of the Ventura Avenue field. This new venture will go down 1000 to 1500 feet south of the No. 1 which bottomed below 5000 feet. This project produced oil in commercial quantities of 34 gravity having a 40 percent gasoline content. The Sespe zone, which proved so productive in the Elwood oil field will be explored in this test.

Another Good Well At Santa Fe Springs

Los Angeles.—Santa Fe Springs yielded another good producer during the past week when Bandini Petroleum Company's Off 20, was completed for an initial production of 1524 barrels per day of 34.4 gravity oil, cutting 0.4 percent. Production is from the Nordstrom zone, at 5285 feet, and water-shut-off is at 5259 feet, where 4¾-inch liner is cemented through perforations. The liner is perforated from 5259 feet to bottom.

While the size of this well is by no means remarkable, nevertheless, when the age of the field and the number of wells producing from this strata is considered, it will be realized that Santa Fe Springs field is still an important factor in California production.

Deviated Dry Hole Makes Flowing Well

Los Angeles.—Union Oil Company is preparing to go back into Kernco A-4, on the extreme northwesterly end of the Mountain View field, Section 15-30s-28e, and will endeavor to whipstock back to the south and east.

This originally was drilled to 5474 feet and bottomed in barren gray sand, bottom of hole having passed through the fault which limits production in this field to the northwest, but is plugged back to 1200 feet, in anticipation of the whipstock job.

Union Oil Company's success in obtaining a 4433-barrel producer in Kernco A-3 on whipstocking back to the southeast of the fault after having drilled through the fault to 5521 feet in barren gray sand, is responsible for this second attempted whipstock job.

East Coyote Field

Los Angeles.—Si Rubens, independent oil operator, has developed a small pumper out of his Rubens 1 well in the East Coyote oil field where Rubens 1 had been on production. This well bottomed below 3365 feet, exposing approximately 200 feet of alternating shale and oil sand.

Edison Outpost Test Shows Very Little Oil

Los Angeles.—One of the highlights of the past week was the production test made in Consolidated Crude Corporation's Bloemer-Jeppi 1, outpost test well on the northwesterly flank of the Edison structure, Kern County.

This well was drilled to 5567 feet but was plugged back to 5514 feet, to shut off doubtful looking formations near bottom. Water shut-off was at 5240 feet, where seven-inch casing was cemented, and 290 feet of 4¾-inch liner, including 268 feet of perforations, was landed at 5514 feet. Oil was circulated on March 8, replacing the mud, and swabbing was started on March 9 and continued for 48 hours.

No estimate is available as to quantity of fluid but it was practically all fresh water, only a small amount of oil and gas being recovered. However, the fact that water was fresh, instead of the salt water usually present at this depth, induces the operators to believe that it is coming from back up the hole. An effort will be made, therefore, to determine the source of water before continuing with the production test.

Ventura Field

Los Angeles.—Victory Oil Company has taken over the Foster lease in the Ventura Avenue field and plans to clean out the two wells on the property in an attempt to increase their production.

One of the wells, M.K.&T. Oil Company's Foster 1, is on production and has a potential of 200 barrels, with an allowable of 115 barrels. The other well, M.K.&T. Oil Company's Foster 2 (formerly S.P. Land Co., No. 1), is standing shut in, and is not capable of production in its present condition.

California Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EAST COYOTE—		
Great American Pet. Co., Tuffrees 2	300	3266
SANTA FE SPRINGS—		
General, Santa Fe 36	100	4816
SANTA BARBARA COUNTY—		
Ortega Oil Co., Williams 1	*	4583
KETTLEMAN HILLS—		
Kettleman No. Dome Assn. No. 65-30J	1480	8766
EDISON—		
Shell, Community 1	350	3303
BELRIDGE—		
Union, No. 18	5150	8490
EDISON—		
Edison Oil Co., C. C. M. O. 2	460	3636
General, Jed 2	100	3164
Monterey Explor. Co., Duff 11	200	3538
MARICOPA—		
Signal O&G Co., Wallace 3	300	2934
KERN COUNTY—		
Standard, Hill 1	¶70	3200

*Failures; †Junked; ¶Million cu. ft. gas.

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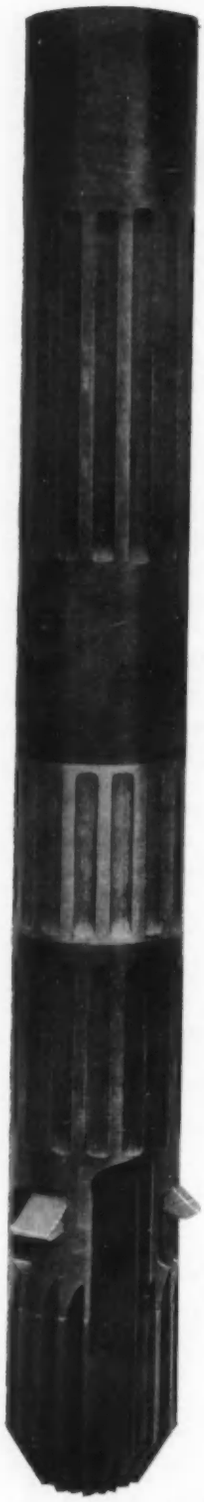

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Organize Porter Brine Water Disposal Concern

Mt. Pleasant, Mich.—Organization of Porter Brine Disposal Company was perfected here this week with C. L. Maguire, head of Roosevelt Oil Company, refiners and producers, elected president of the company. Other officers named are Fred Stork, producer, vice president; A. E. Butterfield, attorney, secretary-treasurer; and George W. Myers, Sun Oil Company, and Robert Daily, Daily Crude Oil Co., directors. A. J. Weideman and O. H. White were authorized to proceed at once with securing right of way for necessary lines for the $20,000 brine disposal system in the Porter oil field of Midland County. Construction is expected to start within a month.

Brine will be collected at a central storage farm and delivered to Dow Chemical Company's plant in Midland, Mich., however, it will be necessary to build a main line only to the Dow trunk line through the field.

Livingston County Test Will Deepen

Mt. Pleasant, Mich.—Talbot Oil Company's McPherson 1, 3n-4e-35, Livingston County, was shut down March 11 at 3585 feet in shale and probably will be deepened for a test of the St. Peters sand horizon. Two gas shows were reported in the Trenton formation logged at 5069 and 5360 feet.

Trenton lime was topped at 4981 feet and drilled out into shale at 5863 feet without water or oil showings.

Pure Oil Company drilled to 4200 feet on Baker 1, 13n-5w-15, Isabella County and will plug back to 3118 feet for an acid of an oil show.

Wildcatting and extension tests are indicated in new permits issued this week. These include Bryan and Martin's Caldwell 1, 13n-7w-se, nw-26, Mecosta County; Goff and Ray Brook's Williams 1, 12n-7w, ne sw ne-14 Montcalm County; United Driller's Vandercook 1, 15n-3w, se ne se-24, and Wittmer Oil Co.'s Ervin 15n-4w, ne sw-13, Isabella County; Beaverton Oil & Gas Co.'s Ross 1, 17n-1w, se sw ne-7, Gladwin County and Sun Oil Co.'s Becker 1, 18n-3w, se se-2, Clare County.

Michigan Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ISABELLA COUNTY—		
W. J. Bernier's Sinclair 1, 14n-6w, ne ne-15	¶1½	1415
Hall Be Oyle's Leiters 1, 15n-6w, sw ne sw-33	*	1500
OGEMAW COUNTY—		
Patterson & Louis' Price 1, 22n-3e, sw sw se-31	100	2615
MECOSTA COUNTY—		
A. R. Wendt's Dart 1, 14n-9w, nw sw-11	¶8	1330

*Failures; †Junked; ¶Million cu. ft. gas.

Eastern Fields Completions

PENNSYLVANIA

Company, Well and Location	Init. Prod. Bbls.	Depth
GREENE COUNTY—		
Natural Gas W. V., Clutter 1	¶	2951
WASHINGTON COUNTY—		
Amon & Kaufman, Weaver 2	5	2417

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Benedum-Trees Co., L. E. Rogers 1	*	3300
CALHOUN COUNTY—		
Hope Constr. & Refg. Co., Fluharty 3315	¶	1797
RITCHIE COUNTY—		
Summers & Co., Jones Hrs.. 1	¶	1720
MONONGALIA COUNTY—		
Convex Glass Co., Martin 1	¶	2240
Manufacturing L&H Co., Hennen 1	¶	....

SOUTHEASTERN OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
MONROE COUNTY—		
Mike Stoffell, L. E. Stoffel 2	*	460
Robert Lewis & Co., Liman & Piatt 1	*	1530
Gordon Green & Co., Eliza Baker 3	¶	1326
Gerber & Co., Walter W. Marsh 2..	*	1745
A. L. Lucas & Co., F. E. McCauley 3	¶	1138
WASHINGTON COUNTY—		
H. B. Walker, Robert Weymer 30..	3	460
D. T. Orndorff, Phillip Roe, Jr. 4..	8	1305

CENTRAL OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
D. T. Orndorff, Lewis Morris 1	¶	1586
COSHOCTON COUNTY—		
Preston Oil Co., W. D. Mossholder 1	44	3205
CALHOUN COUNTY—		
Hope Const. & Refg. Co., Flaharty 3315	8	....
GUERNSEY COUNTY—		
Four Leaf O&G Co., R. S. Grimes 1	¶	1197
William Larrick & Co., Nora V. DeGolier 1	5	3396
MEDINA COUNTY—		
Ed. Obermiller, Frank V. Wood 1.	¶	2795
O. K. Oil & Gas Co., Brinker 34..	10	....
E. R. Edson & Co., Miller 54	5	....
Kemroe Co., Wellman 1	3	....
MEIGS COUNTY—		
Ohio FG Co., Mollie T. Bookman 1	¶	1950
Winters 1	¶	....
PERRY COUNTY—		
Wiser Oil Co., Frank King 1	¶	2841
Perry Sturm & Co., D. O. Petty 4.	*	3000
Kachelmacher Estate, Hemlock Coal Co. 7	10	....
STARK COUNTY—		
East Ohio Gas Co., L.&L. Roush 2	¶	680
Brendall Producing Co., I.&E. Markley 4	¶	4551

LIMA FIELD

Company, Well and Location	Init. Prod. Bbls.	Depth
SENECA COUNTY—		
Basic Dolimite Ins. Fee 2	¶	507

INDIANA

Company, Well and Location	Init. Prod. Bbls.	Depth
GIBSON COUNTY—		
Gem Oil Corp., S.M.&W.T. Ferris 2	*	....
Big Four Oil & Gas Co., Lottie Hope 2	70	1735
KNOX COUNTY—		
Meade Oil Co., E. Blane 3	¶	614
Bland & Burton 1	*	640
Glendary & H. C. Lord, Wallace Evans 1	¶	626
Gardner Pet. Co., Starner Bond 1..	¶	326

ILLINOIS

Company, Well and Location	Init. Prod. Bbls.	Depth
CRAWFORD COUNTY—		
G. R. Pauley, Guy Comly 1	*	1032
MONROE COUNTY—		
Mayestown Oil Co., Louis Faust, Jr. 1	*	600

KENTUCKY

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO COUNTY—		
Mecca Oil Co., Smith 8	*	....
J. C. Miller & Co., J. Ed. Smith 5.	10	....
Wavey Sandersm 2	20	....
B. E. Calvert & Co., W. Smith 5..	15	....

*Failures; †Junked; ¶Million cu. ft. gas.

Drilling Reports on Important Wildcats

MICHIGAN

MIDLAND COUNTY — Goll-Graves-Mechling's Oviatt 1, 16n-2e, Sec. 24, sd 950 ft. Foster and Wicklund's Neal 1, 16n-2w, Sec. 13, dr 3100 ft. Howard Patterson's Haskins 1, 13n-2e, Sec. 26, sd 3701 ft.

ISABELLA COUNTY—Pure Oil Co.'s Baker 1, 13n-5w, Sec. 15, pb to 3118 ft, td 4200 ft, sw. United Driller's Vandercook 1, 15n-3w, se ne se-24, lcn. W. J. Bernier's Webber 1, 15n-5w, nw nw nw-22, lcn.

MONTCALM COUNTY — L. E. Duvall's Eiknorch 1, 11n-10w, Sec. 13, sd 1343 ft. J. W. Leonard's Durbin 1, 10n-5w, Sec. 11, dr 3500 ft. Golden Oil Co.'s Steffensen 1, 10n-8w, Sec. 5, dr 1200 ft. Goff & Raybuck's Williams 1, 12n-7w, ne sw ne-14, lcn.

MECOSTA COUNTY—Columbia Oil and Gas Co.'s Freeman 1, 13n-8w, Sec. 24, dr 575 ft. Jasmid Oil Co.'s Coopersville Bank 1, 13n-10w, Sec. 22, sd 850 ft. Jetter Oil Co.'s Parsley 1, 14n-10w, Sec. 19, dr 500 ft.

GLADWIN COUNTY—M. F. Whitehill's Spicer 1, 17n-2w, Sec. 11, rig. Roosevelt Oil Co.'s Haviland 1, 17n-2w, Sec. 4, dr 3800 ft. Sun Oil Co.'s Hines 1, 17n-1w, Sec. 31, dr 750 ft. Beaverton Oil and Gas Co.'s Ross 1, 17n-1w, Sec. 7, bad hole, 150 ft.

LIVINGSTON COUNTY—Talbot Oil Co.'s McPherson 1, 3n-4e, Sec. 35, sd 5885 ft, (Trenton, top 4981 ft, base 5863 ft), will deepen for St. Peters sand test.

MISCELLANEOUS—Gratiot County: Chas. Weller's Baker 1, 9n-3w-9, dr 2000 ft. Arenac County: McClanahan Oil Co.'s Heath 1, 19n-3e-31, dr 400 ft. Clinton County: Elba-Dulplain Oil Co.'s Stratton 1, 8n-1w-4, csg 6 in at 710 ft. Wexford County: M. J. Ingold's Webb 1, 22n-9w-13, sd 192 ft. Clare County: Sun Oil Co.'s Becker 1, 18n-3w, se se-2, rig.

MONTANA

CHOTEAU COUNTY — Mills & Decker's Test 1, ne nw 29-27n-13e, Little Sandy Dome, ruct.

FERGUS COUNTY—S. W. Pennock's Hordheim 1, nw ne ne 6-21n-18e, Scharf Dome, dr at 500 ft. Button Butte Oil & Gas Co.'s Woodward 1, se se sw 20-14n-24e, Button Butte structure, dr at 3038 ft.

PHILLIPS COUNTY — Guy Norman's Pewitt 1, se nw 20-24n-24e, Gwinn Dome, is dr at 435 ft.

WYOMING

BIG HORN COUNTY—J. W. Bales et al's Parker 1, csw sw 23-49n-89w, Ziesman Dome, resumed dr from 125 ft. California Exploration Co.'s Gafner 1, csw sw 4-54n-94w, dr at 417 ft. Yale Oil Corporation's Blakesley 1, ne ne nw 28-49n-91w, Bonanza Dome, dr at 1156 ft. Jerome Drumheller's Government 1, sw se ne 17-49n-91w, Manderson Dome, testing at 1375 ft after plg back from 1460 ft.

CARBON COUNTY—Argo Oil Co.'s Frank Johnston-Union Pacific 1, ne ne se 5-24n-87w, O'Brien Springs structure, testing Muddy sand after a shot placed between 2829-35 ft. Earl W. Reader, Inc.'s Whitford 1, sw se se 24-20n-84w, Overland Dome, preparing to swedge 10-in csg, which collapsed about 2200 ft off bottom at 3595 ft. Ohio Oil Co. and California Co.'s Wm. Kyle 1, ne se ne 26-21n-79w, Big Medicine Bow structure, yielded 2 joints of 51 degree gravity oil through the drill stem opened one hour in the Muddy sand at 4840-51 ft. Operators are fsg for tester. Ohio Oil Co.'s Sid Morris 1, cne se 6-20n-77w, Diamond dome, dr at 7050 ft.

CONVERSE COUNTY—Chadron-Osage Oil Co. (Lucky Jones), Jebel 1, cn½ 17-32-69, Shawnee structure, spd. Wyoming-Southern Oil Co. and Sidney H. Keoughan's Wisda 1, sec 27-32n-69w, sd at 665 ft.

FREMONT COUNTY—Mid-American Oil Co.'s Government 2, cne sw 14-28n-92w, Sheep Creek structure, has 300 ft of oil in the hole from the Tensleep sand with td 3147 ft. Operators are preparing to test production on the pump.

WASHAKIE COUNTY—Wyoming Oil & Ref. Co.'s Frison 1, nw sw nw 14-48n-91w, Frison dome, dr at 150 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

* —*dry hole abandoned well.*	owdd —*old well drilling deeper.*
‡ —*salt water (completions).*	owpb —*old well plugging back.*
† —*junked and abandoned*	pb —*plugged back or plugging back.*
¶ —*million feet of gas.*	r —*reaming.*
abd —*abandoned.*	rog —*rig on the ground.*
bbls —*barrels.*	rur —*rigging up rotary tools.*
br —*building rig.*	rust —*rigging up standard tools.*
b.s. —*basic sediment.*	sd —*shut down.*
csg —*casing.*	sdtr —*sidetracking.*
co —*cleaning out.*	sg —*show gas.*
dd —*drilling deeper.*	si —*shut in.*
dk —*derrick.*	so —*show oil.*
dr —*drilling.*	so & g —*show oil and gas.*
fsg —*fishing.*	spd —*spudding.*
ft —*feet.*	sr —*straight reaming.*
hfw —*hole full of water.*	sw —*salt water.*
in —*inches.*	td —*total depth.*
lcn —*location.*	ur —*underreaming.*
m —*milling.*	wih —*water in the hole.*
mim —*moving in materials.*	wo —*workover.*
mit —*moving in tools.*	wocs —*waiting on cement to set.*
mot —*milling on tools.*	wosr —*waiting on standard rig.*
n, s, e, w, —*north, south, east, west.*	
oih —*oil in hole.*	

WESTON COUNTY—Conway Oil Co.'s Government 1, se se nw 7-41n-60w, Dewey Dome, td 1400 ft. Oil rose 225 ft in hole over night. Planning to dd and if additional production is not found, it will be pb and shot.

NIOBRARA COUNTY—S & H Development Co.'s Elmer Olinger 2, se ne nw sec 1-36n-63w, Old Woman Creek, so at 790 ft.

COLORADO

ADAMS COUNTY—Riddle Petroleum Co.'s Baxter 1-C, sw 2-3s-66w, Derby dome, rur and moving in boilers.

JEFFERSON COUNTY—Ruby Hill Oil Co.'s Braden 1, se se 24-4s-69w, near Denver, dr out cement at 4015 ft.

LINCOLN COUNTY—Consolidated Smelting & Metals Corporation's Hancock 1, nw nw se 7-17s-52w, set 12½-in csg at 1300 ft and installing new Diesel engine.

MONTEZUMA COUNTY—Coon & Teague's (McElmo Oil Co.) West 1, ne nw 31-36-17, McElmo district, dr below 3100 ft.

PARK COUNTY—South Park Oil Co.'s State 1, se se sw 16-11s-17w, udr 10-in csg to 850 ft and co to bottom at 1225 ft.

PROWERS COUNTY—Trojan Oil & Gas Co.'s Lotus 1, nw ne ne 15-23s-46w, Lamar district, dr at 4958 ft.

WASHINGTON COUNTY—Akron Oil & Gas Co.'s Gilcrest 1, se se sw 22-3n-53w, set 12½-in csg at 200 ft.

NEW MEXICO

CHAVES COUNTY—Warman Oil Trust's Weldon-Hoar 1, nw se 9-14s-25e, Blackdom structure, dr in brown lime at 1577 ft. Los Chaves Development Co.'s test 1, cne 8-8s-23e, dr below 300 ft.

EDDY COUNTY—Coronado Oil Co.'s Anderson 1, cne nw 13-20s-23e, dr at 910 ft with so. Getty Oil Co.'s Dooley 7, sw nw 24-20s-29e, Twin Hills structure, testing at 1473 ft.

GUADALUPE COUNTY—Anton Chico Development Co.'s Fee 2, Anton Chico Grant, northeast corner sw 20-9n-17e, dr below 500 ft.

HARDING COUNTY—Carbon Dioxide Corporation's Test 1, sw sw 2-20n-30e, lcn.

SAN JUAN COUNTY—Continental Oil Co.'s Rattlesnake 42, sw ne nw 12-29n-19w, dr at 795 ft. Cooperative Producers & Refiners' Test 1, 21-20n-9w, spd. Nick Spatter's Test 1, ne sw 32-31n-11w, udr to bottom of hole at 1268 ft. Webb Holding Co.'s State 1, nw 6-30n-11w, getting ready to pump at 1475 ft.

SANTA FE COUNTY—Fisher & Wolcott's Hill 1, sw 6-10n-7e, Barton Dome, dr at 2640 ft in lime.

LEA COUNTY — Anderson-Prichard Oil Corp.'s Brett-Conoco 1, c ne nw 7-20s-37e, Monument area, mim; Fisher 1, c se ne 8-20s-35e, dr 315 ft. Argo Royalty Co.'s Byrl A. Burner-Texas Co. 1, near c ne ne 6-20s-32e, elev 3513 ft, dr 2820 ft. E. B. Guess et al's C. W. Justis 1, swc nw nw 20-25s-37e, sd 1160 ft. R. H. Henderson et al's P. J. Langley 1, c se se 8-25s-37e, elev 3162 ft, top salt 1205 ft, dr 1250 ft; Russell-Steele 1, c ne nw 24-20s-33e, elev 3627 ft, dr 3260 ft. Humble's J. L. Coates 1, c nw ne 10-24s-36e, elev 3383 ft, salt 1314-2947 ft, top brown lime 2996 or 2988 ft, jkd gasser, td 3355 ft, sd for relief well to kill; Coates 1-A, elev 3385 ft, top anhydrite 1324 ft, dr 1410 ft; F. M. Saunders 1, c ne ne 4-22s-34e, elev 3641 ft, ur 2050 ft. Maljamar O&G Corp.'s P. Miller 1, c nw sw 23-17s-32e, dr 500 ft. Nat'l Securities Oil Corp.'s V. Linam 1, nec s½ sw 33-18s-37e, elev 3712 ft, top anhydrite 1580 ft, logged salt 1716-2650 ft, top lime 2956 ft, dr lime 4355 ft. Repollo Oil Co.-Anderson-Prichard Oil Corp.'s B. W. Arnold 1, swc nw se 6-20s-32e, elev 3567 ft, sd 464 ft. Ryan Consolidated Pet. Corp.'s Acree 1, c ne nw 35-20s-32e, elev 3568 ft, dr lime 3320 ft. Shell Pet. Corp.'s State-Endura 1, c se ne 12-21s-35e, elev 3588 ft, top lime 3020 ft, pb from hfw at 4404 to 3990 ft and treated with 3000 gals acid. The Texas Co.-Amerada & Columbia Carbon Co.'s Parker 1, c nw nw 29-26s-37e, dr 1700 ft. W. L. Todd and The Texas Co.'s Fred Cole 1 c ne ne 35-19s-33e, dr 1100 ft. Sam K. Vierson & Brown's W. D. Robinson 1, c nw se 14-11s-32e, elev 4355 ft, rig.

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CALIFORNIA

KERN COUNTY

ALPAUGH—Trico Oil & Gas Co.'s No. 4, 3-25-23, lcn.

BUENA VISTA LAKE—Shell Oil Co.'s B. V. A. 1, 9-32-25, dr shale and sand 4706 ft.

CALIENTE—Signal Oil & Gas Co.'s S. P. Land 1, 31-29-30, sd 2290 ft. Woodland Oil Co.'s Batz 1, 36-29-29, sd 150 ft; S. P. 2, 31-29-30, topped os at 405 ft, dr at 460 ft, was Pennell & Kerr's S. P. 2.

COMANCHE POINT—Comanche Oil Co.'s No. 1, 15-32-29, sd 4325 ft. Tejon Ridge Oil Co.'s No. 1, 23-32-29, fsh 1605 ft.

DEVIL'S DEN—Amerada Pet. Corp.'s No. 2, 17-26-19, no showings, may abn, 2209 ft. Richfield Oil Co.'s Alferitz 2, 14-25-18, wocs 8⅝-in 1695 ft, td 2506 ft.

NEAR EDISON—Cara Vel Pet. Corp.'s No. 1, 19-30-30, sd 1910 ft. H-B Oil Co.'s Clemens 1, 6-30-30, dr sand and shale 510 ft. Mountain View Dev. Corp.'s Spangler 1, 12-30-28, td 5093 ft, wocs 7-in 4994 ft.

GOULD HILLS—The Texas Co.'s Jared-How 1, 29-29-21, dr gray sand 4216 ft.

GREENFIELD—Big McKittrick Oil Co.'s Houghton 1, 7-31-28, td 3644 ft, wocs 9 in 685 ft.

KERNELL—Standard Oil Co.'s Widgeon 1, 1-25-23, lcn.

LOST HILLS—Associated Oil Co.'s Williamson 1, 2-26-20, td 7856 ft, to plug to test upper showings. Standard Oil Co.'s United 1, 2-26-20, dr hard brown shale 2480 ft.

NEAR MOUNTAIN VIEW — Hogan Pet. Co.'s Symons 1, 4-31-29, dr hard sandy shale 5754 ft.

SO. BUTTONWILLOW—Seeple Oil Corp.'s No. 1, 5-30-24, td 3731 ft, to resume dr.

SO. DOME—Continental Oil Co.'s Gatchell 28-7, 7-25-20, dr sandy shale 3406 ft.

TEMBLOR HILLS—Robt. Foster's No. 1, 2-32-22, sd 2175 ft.

WHEELER RIDGE—Badger Oil Co.'s El Tejon 1, 31-11-19, td 6229 ft. Redr 3636 ft. Reserve Oil & Gas Co.'s Tejon Ranch 1, 2-10-19, dr hard shale 3465 ft.

WEED PATCH—Associated Oil Co.'s Di Giorgio 1, 3-31-29, sd 5501 ft.

KINGS COUNTY

ALPAUGH—Trico Oil & aGs Co.'s Magee & Stone 3, 36-24-22, td 2608 ft, wocs 8⅝ in. 2563 ft.

PYRAMID HILLS — General Pet. Corp.'s Martin 1, 20-24-18, td 455 ft, redr hole.

MISCELLANEOUS

FRESNO COUNTY—Russ Oil Synd.'s No. 1, 28-12-11, sd 5015 ft.

HUMBOLDT COUNTY—The Texas Co.'s Eureka 1, 1-3-2, dr sandy shale 4792 ft.

MADERA COUNTY—Pure Oil Co.'s Chowchilla 1, 7-10-14, td 8375 ft, plug 8085 ft, sd.

SACRAMENTO COUNTY—Great American Pet. Co.'s Howard 1, 25-2-8, td 2952 ft to set 8⅝ in at 2950 ft.

SAN JOAQUIN COUNTY—Amerada Pet. Corp.'s F.D.L. 1, 15-2-5, bldg rig.

SUTTER COUNTY—Buttes Oilfields' No. 2, 35-16-1, td 7014 ft, washing formations with chemicals preparatory for test for oil and gas.

TEHAMA COUNTY — Northern Counties Pet. Co.'s Ewers-Mooney 1, 25-24-3, dr hard shale 3195 ft.

TULARE COUNTY — Baker-Grover Co.'s No. 1-A, 10-23-27, lcn.

SANTA BARBARA COUNTY

GOLETA—Shell Oil Co.'s Bishop 1, 20-4-28, td 6508 ft, 6¾ in at 5136 ft, stuck 4¼ in at 5166 ft, co to 5242 ft, swabbing water, trace of oil. West Elwood Oil Co.'s Simonds-Campbell 1, 9-4-28, td 2785 ft, co, formerly Stone Hastain.

LOMPOC—Lompoc Pet. Co.'s Beauterbough 2, 18-7-34, td 2975 ft. sidetracking fish at 2670 ft.

NAPLES—Powell & Snow's No. 1, 7-4-29, dr shale 5767 ft.

SUMMERLAND — Ortega Oil Co.'s Williams 1, 16-4-26, abn 4583 ft.

SAN LUIS OBISPO COUNTY

CHOLAME—Willett Oil Assn.'s Jack 2, 10-25-15, td 3560 ft, 8⅝ in at 2900 ft, testing shutoff.

VENTURA COUNTY

BARDSDALE—El Rancho Oil Co.'s Elkins 1, 9-3-19, dr sand and shale 150 ft. Daniel Fisher's Elkins 1, 5-3-19, sd 762 ft, to drop from report.

LAS POSAS—Las Posas Pet. Co.'s Mahan 1, 22-3-20, td 7800 ft, co.

OJAI—Continental Oil Co.'s Pirie 1, 12-4-23, dr hard sand 1800 ft.

RINCON—Woodrow Pet. Corp.'s Woodrow 1, 4-3-24, sd 7615 ft, to drop from report.

SANTA PAULA — Edw. M. Lesperance's Boosey 1, 31-4-20, td 570 ft, fsh. J. W. Mosher's No. 1, 22-4-21, td 2300 ft, fsh.

SANTA SUSANA—American Drlg. Co.'s No. 1-A, 31-3-17, spud and sd. E. N. Dakes' No. 1, 6-2-17, sd 300 ft. To drop from report.

SESPE—Supreme Oil Co.'s No. 1, 1-4-20, rur.

SHIELLS CANYON — The Texas Co.'s Shiells 128, 4-3-19, dr shale 5744 ft.

SIMI—Dawson Oil Co.'s No. 1, 8-2-17, sd 1910 ft.

TORREY CANYON—A. N. Macrate's No. 1, 32-4-18, td 4038 ft, to deepen.

SOUTHERN CALIFORNIA

ARTESIA—Vance Dev. Co.'s Millard 1, 25-3-12, spud and sd.

BREA CANYON—Pressel-Perry-Tull's Baird 1, 30-2-9, td 4156 ft, co.

CHATSWORTH—Marble Inv. Co.'s Deer Lake 1, 6-2-16, sd 2600 ft.

EL SEGUNDO—Republic Pet. Co.'s No. 1, 18-3-14, dr sand and shale 1933 ft.

FAIRVIEW—Explorers Drlg. Co.'s Norris 1, 9-6-10, sd 960 ft.

HERMOSA BEACH — Corniel Oil Corp.'s No. 1, 31-3-14, co, td 3900 ft. Aron H. Hover's Bryant 1, 31-3-14, td 4200 ft, plug 3940 ft, ran tubing, washing perforations.

HUNTINGTON BEACH, on tidelands—Black Eagle Oil Co.'s No. 1-B, permit 194, 32-5-11, sd 4802 ft.

MANHATTAN BEACH—Bethlehem Explor. Co.'s Martin 1, 30-3-14, coring sand and shale 6020 ft.

NEWPORT—Si. Ruben's No. 1, 14-6-10, td 2574 ft, rur to deepen.

PICO—Frontier Oil Co.'s No. 1, 12-2-12, dr shale 2500 ft.

PUENTE—N. O. Shively's Rowland 1, 23-2-10, td 3145 ft, 8⅝ in at 2310 ft, testing shutoff.

SAUGUS — International Oil Developers' Powell 1, 34-5-16, td 4324 ft, to dr ahead.

RIVERSIDE COUNTY—Corona Oil Co.'s Wardlow 1, 27-3-7, rur.

SAN BERNARDINO COUNTY — Great American Pet. Co.'s Gapco 1-D, 18-2-8, td 300 ft, to set casing.

SAN DIEGO COUNTY—E. A. Hargrave's No. 1, 29-15-3, dr 2360 ft. San Diego Gas & Pet. Corp.'s No. 1, 32-18-2, sd 6333 ft. J. J. Steven's No. 1, 27-18-2, dr hard sand 1200 ft.

KANSAS

BARBER COUNTY—Southern Drilling Co. et al's Davis 1, sw se ne 13-34s-15w, sd 2960 ft.

BARTON COUNTY—Atlantic Oil Co.'s Vaniman 1, csw ne 15-20s-12w, no new test, comp. Treleaven & Brimm et al's Haas 1, sw sw sw 30-18s-15w, pumped 320 bbls oil 24 hrs, comp. Lario Oil & Gas Co. et al's Nuss 1, nw sw sw 11-16s-14w, mim. D. I. Hall et al's Arnold 1, se se sw 19-18s-15w, mit. Wolf Creek's Kraft 1, sw sw sw 26-16s-11w, set 15-in csg 480 ft, wocs. Suppes & Witts' Hayes 1, sw sw sw 6-16s-14w, ponds. McMorrow & Spencer's Hagen 1, ne ne ne 33-20s-11w, set 15-in csg 216 ft, set 12-in csg 525 ft, dr 700 ft.

BUTLER COUNTY—Hay & Cameron's Johnson 1, nw nw se 16-26s-6e, lcn. Tree & Harwood's Henley 1, sw se ne 7-24s-8e, dr 200 ft.

CLAY COUNTY—Seidel Brothers' Younken 1-A, cs½ se nw 21-9s-4e, td 1772 ft, cement cave.

COWLEY COUNTY—Lassen's Ferguson 1, se se nw 21-30s-8e, pumped 90 bbls oil, comp.

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A. McCoy's Brandenburg 1, sw sw se 17-34s-5e, spd. Lloyd, Frost & Study's Weathered 1, sw se se 28-31s-3e, rig.

DICKINSON COUNTY—Dutch Oil Co.'s Phillips 1, cne nw 15-15s-1e, sd 2714 ft.

ELLSWORTH COUNTY—Carter Oil Co. et al's Teubner 1, se se nw 26-17s-9w, dr 2815 ft. Pryor & Lockhart et al's Gregory 1, se se se 19-16s-8w, fsg 900 ft. Lario Oil & Gas Co. et al's Wright 1, sw sw ne 17-16s-8w, dr 925 ft. Lario Oil & Gas Co. et al's Central National Bank 1, se se nw 33-15s-8w, lcn. Lario Oil & Gas Co. et al's State 1, sw sw sw 29-15s-8w, br.

HARVEY COUNTY—H. H. & S. Oil Co.'s Frizzle 1, ne ne se 31-23s-2w, ponds.

KINGMAN COUNTY—Sam Jarvis et al's Morrissee 1, csw ne 23-30s-10w, rig.

MARION COUNTY—Youker et al's Bernhardt 1, cse nw 7-18s-4e, set 12-in csg 945 ft, dr 1625 ft. Lario Oil & Gas Co.'s Base 1, sw sw sw 22-20s-2w, fsg 3510 ft. Palmer Oil Corp.'s Swenson 1, ne ne sw 11-18s-3w, sd 1360 ft. Brosius et al's Hanson 1, ne ne sw 15-17s-2w, sd 105 ft. Shell Pet. Corp.'s Wenger 1, ne ne ne 2-20s-1w, set 16-in csg 199 ft, dr 1400 ft. Carey & Miller's Husband 1, se se nw 6-19s-2w, mim.

OSAGE COUNTY—Jim Edwards' Deitrick 1, cnw se 21-14s-15e, sd 590 ft.

NESS COUNTY—Texas Co. & Gypsy Oil Co.'s Goodman 1, csw sw 21-19s-23w, sd 4805 ft. Phillips Pet. Co.'s Young 1, cnw sw 13-18s-21w, sd 75 ft.

RENO COUNTY—Privett Drilling Co.'s Crotts 1, ne nw ne 27-26s-10w (owdd), sd 3712 ft. Johnson & Carey et al's Dyck 1, se ne se 35-22s-5w, dr 4065 ft. Bradley's Olmstead 1, sw sw sw 22-22s-7w, mim.

RICE COUNTY—Allison & Fitzwilliams et al's Stumps 1, nw nw sw 4-18s-10w, dr 2603 ft. Foraker-Nickerson et al's Lyon 1, se se ne 27-20s-8w, so 2575 ft, set 8-in csg 2588 ft, co. Vickers Pet. et al's Gouldner 1, se ne nw 16-18s-9w, dr 135 ft. Langston et al's Markle 1, ne ne sw 1-20s-9w, set 6-in csg 3040 ft, co 3082 ft. Day's Mason 1, nw ne ne 28-21s-7w, br. Gypsy Oil Co.'s Kessling 1, nw nw sw 10-20s-9w, coring 3231 ft.

ROOKS COUNTY—Stearns-Streeter et al's Hoskins 1, se sw se 34-9s-16w, 1000 gal acid & pumped 120 bbls oil. Smith & Ash's Nelson 1, nw nw ne 27-10s-16w, rig. Tree Oil Co. & Findeiss' Johnson 1, sw sw ne 26-10s-19w, mim.

RUSH COUNTY—Flynn et al's Hartman 1, sw se nw 4-18s-16w, rig. Lario Oil & Gas Co. & Phillips Pet. Co.'s Benbow 1, nw ne ne 12-17s-19w, td 3397 ft, run 6-in csg. Morgan & Flynn et al's Schlegel 1, se se nw 26-17s-16w, rig.

RUSSELL COUNTY—J. Brouk & R. D. Bailey's Kluesner 1, nw nw se 34-15s-12w, ru. El Dorado Refining Co.'s Walz 1, se ne nw 29-13s-11w, hfw 3439-3491 ft, D & A. Hartman & Blair's Krause 1, ne nw nw 5-15s-15w, dr 3010 ft. Wolf Creek et al's Penn Mutual 1, sw sw sw 22-15s-15w, mim. Hartman & Blair's Furthmeyer 1, ne ne ne 19-21s-13w, set 8-in csg 2410 ft, dr 2720 ft. Hartman & Blair's Garrett 1, sw sw nw 24-13n-12w, mim. Murphin's Funk 1, sw sw sw 19-12s-13w, spd & sd. Reserve et al's Moore 1, cnw nw sw 15-13s-12w, mim. Hartman & Blair's Hildebrandt 1, nw ne sw 12-14s-14w, br. Vernon & Murphin's Becker 1, ne ne ne 33-15s-14w, mim.

SEDGWICK COUNTY—Allison & Fitzwilliams' Struthers 1, ne sw sw 34-28s-2w, fsg 3295 ft. Syndicate Oil & Gas Co. et al's Ratzlaff 1, ne nw nw 30-26s-2e, td 3520 ft, D & A. Aladdin Pet. et al's D. Lacuk 1, se ne nw 21-28s-2e, td 3370 ft, D & A. Magnolia Pet. Co.'s Bartholomew 1, se se sw 30-27s-4w, td 4148 ft, D & A.

STRATFORD COUNTY—Atlantic Oil Co. & Phillips Pet Co.'s Guthrie 1, cnw nw 15-25s-11w, dr 3930 ft. Atlantic Oil Co.'s Hohner 1, nw se ne 31-23s-14w, will core. Lario Oil & Gas Co. et al's Tudor Morgan 1, se se nw 23-24s-13w, set 15-in csg 230 ft, dr 564 ft.

SUMNER COUNTY—Tom Palmer's Wentworth 1, nw nw ne 9-35s-2e, 60 bbls oil & 2 bbls water. D. J. Wilson et al's Clark 1, csl nw 15-35s-1w, br. Wakefield et al's Newton 1, se se se 21-30s-2e, rig. Shell Pet. Corp.'s Green 1, se sw nw 3-33s-2e, spd.

TREGO COUNTY — Central Commercial Drilling Co.'s Wagg 1, nw nw se 17-13s-21w, fsg 1600 ft. Jenman Oil Co.'s Jones 1, se se se 20-12s-23w, set 10-in csg 144 ft, dr 2835 ft. Hansa & Lacuk's Lang 1, sese nw 1-14s-21w, cellar.

OKLAHOMA

ATOKA COUNTY—H. F. Potts' Nichols 1, sw sw nw 32-2s-9e, dr 1450 ft. Malernee et al's D. D. O. Land Co. 1, cse se 35-2s-13e, sd 3115 ft.

BECKHAM COUNTY—Fred Coogan et al's Shelton 1, sw sw sw 33-10n-25w, dr 2000 ft.

BRYAN COUNTY—C. B. Welch's M. Collins 1, sw sw nw 19-8s-8e, dr 250 ft. Trio Oil Co.'s Gilbert 1, se se se 25-8s-7e, dr 139 ft.

CADDO COUNTY—H. W. Lee et al's Stacy Ferrel 1, sw ne ne 3-6n-13w, sd 2003 ft for new contract. Denver P & R Co.'s Noe 1, nw sw sw 34-10n-10w, moving in gas lift equipment, est good for 50 bbls oil daily.

CARTER COUNTY—Carter Oil Co.'s Humble-Williams 1, sw ne sw 27-2s-3w, td 4230 ft. Waco Turner's A. F. Munson 1, ne nw ne 35-5s-2w, mir.

CHOCTAW COUNTY—Rhodes et al's Pussumik Savings Bank 1, se se se 1-5s-17e, lcn.

CLEVELAND COUNTY — Sinclair Prairie Oil Co's Franklin Community 1, se nw se 21-10n-2w, dr 3856 ft.

COAL COUNTY—E. W. Whitney et al's Miller 1, se se ne 10-2n-8e, otd 2950 ft, dd.

COMANCHE COUNTY—F. F. Stevens' Green 1, se se sw 2-1n-13w, sd 1315 ft. H. W. Baker's Miller 1, se sw se ne 22-2n-13w, sd 120 ft. Henry Rosenthal et al's Au-chi-re-ah 1 "B," nw nw nw 5-1n-9w, td 1493 ft, rotary tools moved out.

GARFIELD COUNTY—Herndon Drilling Co. et al's Allen 1, cne ne sw 35-24n-3w, dr 3030 ft.

GARVIN COUNTY—National Producing Co.'s Littrell 1, ne ne ne 31-2n-3w, sd 1340 ft. George L. Pace's Smith 1, sw sw ne 35-1n-1e, spd and sd. Charles E. Carter et al's Wood 1, nw sw se 5-4n-3e, sd 2070 ft. Anderson-Kerr et al's Rodke 1, nw nw se 17-4n-1w, lcn.

GRANT COUNTY — Helmerich-Payne's

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Crouse 1, cne sw 29-25n-8w, td 6036 ft, dr cement plug.

GREER COUNTY—Fred Morgan et al's H. G. Garder 1, csw se 19-4n-22w, set 10-in surface csg at 60 ft, wocs.

HUGHES COUNTY—Freeman et al's Kite 1-A, nw nw ne 8-6n-10e, sd 598 ft. Dandridge & Crane's Mead 1, nw nw ne 17-5n-9e, dr 1285 ft. Turner et al's Williams 1, csw sw sw 35-7n-10e, moving out tools. Amerada Pet. Corp.'s Adams 1-A, ne ne sw 31-9n-9e, dr 4050 ft.

JACKSON COUNTY—Palo Duro Oil Co.'s Ealum 1, se se sw 16-2n-21w, sd 840 ft. Scheig's James 1, ne ne ne 23-1n-20w, sd 1904 ft. Associated Oil Co.'s Harrell 1, ne ne sw 13-1s-21w, sd 720 ft. Selby Oil Co.'s R. C. Holt 1, se se sw 15-2n-20w, dr 965 ft. Petroleum Prod. Co.'s Cole 1, sw sw se 34-2n-20w, est 25 bbls oil daily, comp. Whatley & Whatley Holt 1, nw sw se 20-1n-20w, dr 802 ft. Scheig et al's C. W. Cole 1, ne se se 5-1n-20w, dr 1200 ft. A. H. Emenhiser's Murrell 1, se sw se 17-3n-21w, dr 910 ft. Jack Kilgore et al's Wooldridge 1, se se ne 15-3n-21w, ru mach. Golden & Cochran's L. H. Duncan 1, sw sw ne 34-2n-21w, dr 940 ft. Scheig Oil Co. et al's Sue Richardson 1, sw nw se 30-1n-19w, lcn. J. G. Buell et al's M. E. Kizzar 1, se se ne 2-2n-22w, ru and sd. Triangle Oil Co.'s Fox 1, cel se nw 11-3n-20w, spd and sd.

JEFFERSON COUNTY—Gypsy Oil Co.'s J. James 1, sw se se 30-6s-6w, br.

KAY COUNTY—Harris-Haun's Schuessler 1, cnw sw 3-28n-2e, fsg 2620 ft. Max Kelly's Spore 1, nw nw se 17-27n-2e, lcn. J. E. Lindsay's Waggoner 1, nw nw ne 3-27n-1e, lcn.

KINGFISHER COUNTY—Black Gold Pet. Co.'s Cole 1, csw ne 24-18n-5w, dr 6403 ft.

LINCOLN COUNTY—Charles Balph et al's Young 1, cn½ nw nw 23-15n-5e, sd. Slick-Urschel et al's Miller 1, nw nw se 25-15n-3e, coring 5033 ft. Carter Oil Co. et al's McFarland C-38 1, sw sw ne 18-13n-4e, rig.

LOGAN COUNTY—Sinclair Prairie Oil Co.'s School Land 1, se se se 36-17n-1w, td 5335 ft, rust and sd. Shell Pet. Corp et al's Hirzel 1, se sw sw 7-16n-2w, cored 5897-5914 ft, coring ahead. Slick-Urschel's Pennington 1, csw ne 10-16n-1w, dr 3925 ft. J. C. Shaffer et al's Watson 1, cnw ne 15-15n-4w, dr 2985 ft. Sinclair Prairie Oil Co. and Slick-Urschel's Koatsch 1, sw sw sw 23-15n-3w, dr 4870 ft. Mid-Continent's Comm. Nunn 1, se se nw 25-15n-1e, lcn. Anderson-Kerr et al's Renfrow 1, ne ne ne 33-16n-4w, cellar.

LOVE COUNTY—Amerada Pet. Corp. and Stanolind Oil & Gas Co.'s Westheimer & Daube 1, nw se se 27-6n-2e, pb to straighten.

MARSHALL COUNTY—Paul R. Robb's Vittetoe 1, cne se 11-5s-4e, sd 5138 ft.

McCLAIN COUNTY — Anderson & Kerr's Newburn 1, nw sw ne 24-5n-3e, rig.

McCURTAIN COUNTY—J. V. Scrivener et al's Central Life Association 1, ne sw sw 24-6s-21e, sd.

MURRAY COUNTY—Equitable Oil & Gas Co.'s Scott 1, csl n½ nw sw 15-1s-3e, sd 1500 ft. Manahan Oil Co.'s Ward 1, ne se nw 18-1s-3e, dr 1295 ft. Gillette & Kroeger's Robbins 1, ne ne se 31-1n-6e, rog. Equitable Oil & Gas Co.'s Baer 1, sw nw nw 21-1s-3e, ru mach. Equitable Oil & Gas Co.'s Ferguson 1, ne ne sw 36-1s-3e, cellar and pits.

NOBLE COUNTY—Marathon Oil Co.'s Gilbert 1, ne ne ne 24-22n-2e, flowed 245 bbls oil 15½ hrs, est ¾ million gas.

OKFUSKEE COUNTY—Mid-Continent Pet. Corp.'s Haney 1, sw se ne 24-12n-8e, gas broke in from behind pipe, spray est 10 bbls oil daily, to test. Amerada Pet. Corp. et al's Jaynes 1, nw nw sw 20-10n-10e, set 7-in csg 3749 ft, cemented.

OKLAHOMA COUNTY—R. Carl Larkin's Brobine 1, sw sw ne 33-13n-5w, rig. Anderson-Kerr et al's Linn 1, sw sw nw 17-14n-2w, dr 2110 ft. W. H. Atkinson et al's Reed 1, ne ne ne 4-12n-3w, ru. Gypsy Oil Co.'s Schock 1, nw sw sw 2-14n-3w, br.

PAYNE COUNTY—Marathon Oil Co.'s Potts 1, csw sw 27-19n-2e, hfw, d and a.

PITTSBURG COUNTY — McAllister Pet. Co.'s Chunn 1, se se nw 29-4n-14e, sd. P. H. Gray et al's Lee 1, nw nw se 12-5n-13e, dr 1150 ft.

PONTOTOC COUNTY—J. D. Sledge and Jack Lynch's Thompson 1-A (twin) sw ne sw 1-1n-7e, pulled 6-in csg, flow 63 bbls oil daily. Paramount Oil Co.'s Graham 1, sw se sw 13-1n-2e, sd 3298 ft. H. M. Marcum's Magnuson 1, sw se se 23-2n-7e, td 1930 ft, tools stuck. Mudge Oil Co.'s Clampett 1, sw nw nw 10-2n-6e, sd 915 ft. Southern Oil Corp.'s Vierson 1, ne ne se 17-3n-7e, mach. Crabb-Craw Oil Co.'s Breco 1-A, se ne sw 3-4n-6e, sd. Southern Oil Co.'s Walker 1, nw nw sw 11-4n-6e, sd 820 ft. Crabtree's Chandler 1, ne se sw 4-5n-6e, sd 110 ft. Gillette & Kroeger's Duver 1, nw nw se 36-1n-6e, dr 1185 ft. Fleetborn Oil Corp.'s Oliver 1, ne nw se 21-4n-5e, lcn.

POTTAWATOMIE COUNTY—C. W. James et al's Neal 1, nw se sw 4-5n-3e, td 3807 ft, lowering 6-in csg. Howard Sherman et al's O. N. Wingo 1, ne nw se 32-10n-5e, rig.

PUSHMATAHA COUNTY—William Ungerman et al's Messer 1, se sw sw 35-3s-18e (owdd), td 2795 ft, 600 ft oih.

SEMINOLE COUNTY—Verser & Clay's Thomas 1, ne se nw 1-6n-6e, sd 2802 ft. Ray Dorris & J. T. Hall's Dorris 1, se se sw 31-10n-7e, sd 500 ft. Wofford Drilling Co.'s Abbott 1, ne ne ne 33-8n-7e, rig. Wofford Drilling Co. et al's Thomas 1, nw nw se 8-6n-7e, set 6-in csg 3881 ft, rust.

STEPHENS COUNTY—J. W. Madison's Tussey 1, sw se nw 24-1n-4w (owdd), rig down & dr pipe in hole, sd.

TILLMAN COUNTY—Laper et al's Conrad 1, ne ne ne 35-1s-19w, ru.

WASHITA COUNTY—Anadarko Basin Oil Co.'s Ash Wolf 1, ne ne sw 23-9n-17w, ru & sd.

WEST TEXAS

ANDREWS COUNTY — Fuhrman Pet. Corp.'s W. H. Boner 2-B, sec 25, blk A-43, PSL sur, top anhydrite 1710 ft, top salt 1730 ft, gas zones 4060-4155 ft, est 6,000,000 ft gas, fsh tools. Humble O&R Co.'s J. S. Means 3, c nw ne sec 9, blk A-35, PSL sur, top salt 2134 ft, dr 3470 ft; R. M. Means 3, se¼ sec 4, blk A-45, elev 3177 ft, top lime 4125 ft, flowed 189 bbls oil lime pay 4612-4628 ft, treated with 3000 gals acid; R. M. Means 4, sw¼ sec 4, blk A-45, lcn. Lou Stogner & A. E. Service Drlg. Co.'s J. W. Richards-McWhorter 1, c se ne sec 4, blk A-37, PSL sur, elev 3350 ft, top anhydrite 1590 ft, set cas 2908 ft. Honolulu Oil Corp.-Llano Oil Co.'s J. E. Parker 1-B, nec w½ ne¼ sec 11, blk A-43, PSL sur, mim. R. L. York & O. C. Harper's Hereford 1, c labour 12, league 315, Parmer Co. S. L. sur, top anhydrite 2280 ft, top salt 2320 ft, sd for cas 3430 ft. E. M. Wahlenmaier Pet. Corp.'s Odessa Ranch 1, c ne¼ sec 10, blk A-32, PSL sur, mim; Cox 1, c nw ne sec 8, blk A-35, PSL sur, lcn.

BORDEN COUNTY—John I. Moore et al's Clayton-Johnson 1, sec 29, blk 32, T&P Ry. sur, T-4-N, lcn.

BREWSTER COUNTY—Floyd C. Dodson et al's Texas American Synd. 1, c ne ne sec 66, blk 10, H&GN Ry. sur, deep test, sp and sd. C. M. "Dad" Joiner et al's W. J. McIntyre 1, sec 31, blk 352, W. J. Mitchell sur, co 2122 ft. H. K. King & C. R. Franklin's A. S. Gage 1, sec 138, blk B-22, GH&SA Ry. sur, dr 630 ft. S. G. Smith et al's Mrs. Ed. Decie 1, nwc se¼ sec 7, blk 1, G. T. Ry. sur, sr 775 ft. G. H. Storey et al's Jim P. Wilson 1, c nw se sec 3, blk 212, T&St. L. Ry. sur, lcn.

CRANE COUNTY—Gulf Prod. Co.'s W. N. Waddell et al 1, c nw nw sec 4, blk E-27, PSL sur, Ordovician lime test, elev 2554 ft, top salt 510 ft, dr 3590 ft; M. B. McKnight 1, c sw sw sec 9, blk B-21, PSL sur, mim. American-Liberty Oil Co. et al's J. B. Tubb-Humble 1, swc sec 11, blk B-27, PSL sur, sp. Wahlenmaier Pet. Corp. et al's TP Land Trust 1, sec 33, blk 44, T&P Ry. sur, T-3-S, elev 2796 ft, top anhydrite 1100 ft, top salt 1325 ft, top lime 3130 ft, so&g, sd for cas 3320 ft.

CROCKETT COUNTY—Humble O&R Co.'s S. E. Couch 1, c nw sec 3, blk "QR", D&SE Ry. sur, Ordovician lime test, elev 2538 ft, dry and abd 1850 ft. E. C. Leslie and Hiller's J. S. Todd 1, sec 26, blk "WX", GC&SF Ry. sur, sd 580 ft.

CULBERSON COUNTY — Anderson-Prichard Prod. Corp.'s H. A. Borders 1, sec 34, blk 69, elev 4565 ft, sd 940 ft. Miller et al's fee 1, sec 21, blk 97, PSL sur, sd 2105 ft. Nelwood Drlg. Co.'s A. L. Hall 1, sec Sec 11, blk 54½, PSL sur, sd 200 ft.

JEFF DAVIS COUNTY — C. M. "Dad" Joiner et al's Jones-Coffield 1, sec 8, blk 3, H&TC Ry. sur, dr 710 ft.

DAWSON COUNTY — Fred Turner and Harry Adams Corp.'s John Robinson 1, c nw sec 46, blk "M", EL&RR Co. sur, elev 3078 ft, top salt 1970 ft, top lime 2885 ft, sg 3280 ft, dr 4185 ft.

ECTOR COUNTY—Empire G&F. Co.'s E. H. Cummins 1, sec se¼ sec 10, blk 44, T&P Ry sur, T-1-N, dr 380 ft. Gulf Prod. Co.'s C. A. Goldsmith 1, c nw sec 10, blk 44, T&P Ry. sur, T-1-S, dr 1490 ft. International Pet. Corp.-O. C. Harper's E. F. Cowden 1, c se se sec 25, blk 44, T&P Ry. sur, T-2-S, elev 3019 ft, top anhydrite 1605 ft, top salt 1645 ft, dr 3000 ft. Landreth Prod. Corp. et al's Frank Cowden 1, swc sw¼ sec 18, blk 44, T&P Ry. sur, T-1-N, mim; Clarence Scharbauer 1, sec nw¼ sec 13, blk "A", PSL sur, lcn. Neville G. Penrose et al's A. Kloh-TP Land Trust 1, nwc w½ se sec 31, blk 45, T&P Ry. sur, T-1-S, elev 3154 ft, top anhydrite 1290 ft, top salt 1375 ft, dr 3145 ft.

FISHER COUNTY—Tide Water Oil Co. and Merry Bros. & Perini, Inc.'s M. Howard 1, elev 1849 ft, ne¼ sec 180, blk 2, H&TC Ry. sur, pumped 264 bbls oil and 74 bbls w after pb from 3677 to 3674 ft.

GLASSCOCK COUNTY—John I. Moore-Loffland Bros. et al's L. S. McDowell 1, sec 22, blk 34, T&P Ry. sur, T-2-S, Ordovician lime test, elev 2534 ft, top lime 2137 ft, top Crinordial lime 9471 ft, cem 7⅝ in cas 9468 ft, td 9520 ft; McDowell 1, lse 2, dr 1415 ft.

HOWARD COUNTY—S. B. Dorn et al's TP Land Trust 1, SEc sec 45, blk 30, T&P Ry. sur, T-1-N, dr 1850 ft.

JONES COUNTY—Coltex Oil Co.'s H. N. Smith 1, se¼ sec 25, blk 19, T&P Ry. sur, sd 1105 ft. Fondren Production Co.'s Sam R. Cox 1, sec 74, blk 14, T&P Ry. sur, lcn. Dr. C. E. Johnson et al's W. T. Young 1, blk 190, B. Trevino sur, sd 1315 ft. H. T. Owens et al's Dunwoody-Jobson 1, sec 6, blk 17, T&P Ry. sur, lcn abd. Putman Oil Co.'s J. J. Steele 1, lot 8, C. Allen sur No. 10, A-500, lcn.

LOVING COUNTY—Mason Oil Co.'s M. Kyle 1, c nw se sec 22, blk 55, T&P Ry. sur, dr 490 ft.

LYNN COUNTY—Edgar T. Hart & Wanete Oil Co.'s C. O. Edwards 1, se¼ sec 29, blk 1, L&SV Ry. sur, elev 3112 ft, top anhydrite 1690 ft, top salt 1945 ft, sd 3980 ft.

MARTIN COUNTY—S. E. Wright & Ralph Scott's F. W. Flanagan 1, nec sec 22, blk 37, T&P Ry. sur, T-1-S, sp and sd.

PECOS COUNTY—Gulf Prod. Co.'s White-Baker 5, nec sec 88, blk 194, GC&SF Ry.. sur, mim. Cardinal Oil Co.'s White-Baker 1, nwc w½ sw¼ sec 51, blk "Z", TC Ry. sur, cem cas 823 ft. International Pet. Corp.'s White-Baker 1, nec se¼ sec 4, blk 207, TC Ry. sur, sp and sd. Trans-Texas Oil Co.'s C. M. Caldwell 1, sec Sec 27, blk 50, T&P Ry. sur, Tsp. 9, sd 1680 ft.

REAGAN COUNTY—Dobbs Oil Co.'s W. E. Friend 1 (681-ac), nwc s½ sec 3, Wm. Allen sur, top salt 1060 ft, dr 1100 ft Byrd-Frost, Inc.'s O. F. Boyd 1, c se¼ sec 6, blk "E", L. & S. V. Ry. sur, sp and sd. Skelly Oil Co. et al's University-Utah 1-D, c sw nw sec 33, blk 8, Ordovician lime test, elev 2891 ft; top Cisco 9174 ft, top Simpson 9400 ft, dr 9640 ft.

REEVES COUNTY—J. E. Cunningham & A. R. Eppenauer Drlg. Co.'s Tiller Bros. 1, R. P. Altman & Wyatt sur, sd in lime and anhydrite 3743 ft to set cas and rusg. Kenneth Slack & L. M. White's Francis Reeves 1, c se nw sec 20, blk 56, PSL sur, lcn.

RUNNELS COUNTY—Blaylock & Co.'s Y. J. McGaughan 1, T. M. Fowler sur No. 444, lot No. 14, sd 750 ft. Grover Hart et al's G. W. Ash 1, nec w½ sec 123, E. T. Ry. sur, sp and sd. Herman Giesecke et al's fee 1, c ne ne sec 121, J. Hughes sur, lcn. R. Wells et al's W. F. James 1, D. Diaz & N. Travis sur, sd 850 ft.

SCHLEICHER COUNTY—M. D. Bryant et al's J. A. Whitten 1, lcn. J. M. Cooper et al's Bert Page 1, sec 40, blk "L", GH&SA Ry. sur, Ordovician lime test, elev 2270 ft, sd 5987 ft. W. C. Proctor, K. Kimberlin & J. D. Wesner's Judkins-Spencer (Pure) 1, c sw sec 4, Hooper-Wade sur, blk "A", cert No. 127, Ordovician lime test, sp and sd.

SCURRY COUNTY—H. H. Coffield & W. S. Guthrie's O. H. Holliday 1, sec 120, blk 97, H&TC Ry. sur, sd 2967 ft. C. T. McLaughlin et al's W. C. Allen 1, c ne sec 398, blk 97, H&TC Ry. sur, sd 375 ft.

STERLING COUNTY—Darby Pet. Co.-J. I. Moore & Merry Bros. & Perini, Inc.'s R. L. Stansberry 1, c sw ne sec 20, blk 30, W&NW Ry. sur, top lime 2095 ft, sd 2829 ft.

STONEWALL COUNTY—Merry Bros. & Perini, Inc-Humble O&R Co.'s C. L. Williams 1, sec 6, blk "C", AB&C sur, sd 3005 ft.

SUTTON COUNTY—Paul C. Teas et al's C. E. Mower 1, c ne sw sec 39, blk 5, TW&NG Ry. sur, Ordovician lime test, top lime 3268 ft, so&g 4245-58 ft, dr 4340 ft.

TAYLOR COUNTY—H. Crissman et al's Abilene fee 1, sec 66, BAL sur, dr 1640 ft. Eastland Oil Co. et al's C. R. Tittle 1, c nw nw sec 37, blk 19, T&P Ry. sur, lcn.

UPTON COUNTY—Baldridge Oil Co.'s S. Peck 1, sec se¼ sec 29, blk 41, T&P Ry. sur, T-4-S, lcn. Gulf Prod. Co.'s J. T. McElroy 103, c nw sw sec 197, blk "F", Ordovician test, elev 2625 ft, top lime 2620 ft, dr limestone and chert 11,545 ft. Humble O&R Co.'s L. W. Pollok-Gulf 1, c nw sec 4, blk "M", EL&RR sur, Ordovician lime test, top salt 1670 ft, crooked hole 2359 ft.

WARD COUNTY—Rector Oil Co. et al's Lee Monroe 2, e cor sec 2, blk 1, W&NW Ry. sur, sd 1965 ft. Magnolia's Geo. Sealy 2, nwc sw¼ sec 43, blk "F", dr 275 ft.

WINKLER COUNTY—Barnsdall Oil Co.'s Brown-Altman 1-B, sec nw¼ sec 6, blk B-5, PSL sur, dr 2145 ft. Fox-Butler & T. J. Jefferies et al's Brown-Altman 1, nec n½ sw sec 6, blk B-5, PSL sur, flowing 4 bbls oil per hr, td 3200 ft. Green Production Co.'s J. F. Cross 1, nec nw¼ sec 4, blk B-10, PSL sur, lcn. Joe C. Maxwell & Atlantic O. P. Co.'s Oscar Clapp 1, swc n½ sec 37, blk 26, PSL sur, pb from 3487 to 3210 ft and shot 100 qts. 3175-3205 ft, sd for acid. Magnolia Pet. Co.'s J. B. Walton 6, top lime 2521 ft,

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GULF BUILDING—HOUSTON, TEXAS

dr 2540 ft. Sid Richardson et al's J. B. Walton-Pure 1, sw¼ sec 1, blk B-3, PSL sur, elev 2940 ft, top anhydrite 1131 ft, sd to collect money on lease sales, td 2418 ft. Sayre Oil Co.'s L. Daugherty-TP Coal 1, sec s½ se sec 2, blk B-26, PSL sur, making big gas flow, fsh 2737 ft; Howe 2, dr 210 ft. Sinsi Oil Co.'s J. C. Lovett 1, nec sec 36, blk B-26, PSL sur, dr 275 ft. Skelly Oil Co.'s J. M. Halley 2, ne¼ sec 25, blk B-11, PSL sur, elev 2726 ft, making big gas, fsh 3090 ft. Sun Oil Co.'s S. M. Halley 1, sec n½ sec 24, blk B-12, PSL sur, elev 2736 ft, top lime 2485 ft. TP Coal & Oil Co.'s Lum Daugherty 1, sec n½ se¼ sec 2, blk B-26, PSL sur, mim.

EAST TEXAS

ANDERSON COUNTY—Gulf Prod. Co.'s Mary J. Ross 1 (54.7-ac), Robt. Erwin sur, Camp Hill area, eev 484 ft, Pecan chalk 3766-3970 ft, Austin chalk 4509-4696 ft, top Woodbine 4749 ft, top sand 4796 ft, tested sw 4750-4800 ft, top Red Beds 4802 ft, dr 4950 ft; W. C. Calloway 1, P. Martin sur, lcn; Davey-Royall 2, testing os 408-415 ft; Delaney 1, P. Martin sur, lcn; Flint & Scott 1, P. Martin sur, lcn; L. B. Ross 1, J. C. Rosson sur, cored good so in sand 540-92 ft, dr 650 ft. Gulf and Humble's O. G. Rogers 1 (267½-ac), Daniel Parker sur, 5 mi sw of Elkhart, dr 1010 ft. Tide Water and Texas Seaboard's N. N. Wills 21-A, Cayuga field Trinity test, dr 5610 ft. Joe A. Worsham et al's W. F. Wathen 1 (80-ac), B. Towles sur, nw of Cayuga field, elev 319 ft, sp and sd.

BOWIE COUNTY—Tex-Ark Oil Co.'s J. B. Hamilton 1 (40-ac), Jessie Milam sur, elev 272 ft, so in sand 210-240 ft, sd for cas 250 ft. A. L. Wills et al's Irene Parsons 1, W. B. Hawkins sur, Old Boston area, lcn.

CHEROKEE COUNTY—Ponta Oil Co. et al's C. W. Darley 1 (35-ac), Cyrus Parks sur, 2¼ mi s of Summerfield, sp and sd. Killough et al's J. S. Strickland 1 (40-ac), Urian Moore sur, 7 mi nw of Jacksonville, elev 433 ft, sd 3505 ft. T. J. Wood & Young's New Birmingham 3 (160-ac), Rusk pool, Levi Jordan sur, mim. E. M. Thomason & Co.'s W. J. Addis 1 (80-ac), Jessie T. Jones sur, elev 471 ft, top broken Pecan chalk 3951 ft, first hard chalk 4020 to 4277 ft, dr 4510 ft.

FREESTONE COUNTY — Amerada Pet. Corp.'s H. Berk 1 (1057-ac), E. G. Rector sur, Cayuga area, elev 255 ft, Pecan chalk 2180-2405 ft, Austin chalk 3175-3534 ft, top Woodbine section 3832 ft, o.s. 4019-4025 ft, testing. J. A. Hoover and R. J. Bain's W. W. McFall 1 (65-ac), S. Garrison sur, lcn. Simms Oil Co. and Clark & Cowden's W. H. Goolsby 1 (50-ac), J. A. McAnulty sur, 4 mi e of Teague, elev 436 ft, Pecan chalk 2583-2705 ft, Austin chalk 3490-4070 ft, (hard section 3523-3855 ft), dr 4165 ft.

GREGG COUNTY—O. T. Clark et al's T. G. Williams 1 (100-ac), David Hill sur, 3 mi ne of Longview, elev 426 ft, Pecan chalk 2391-2985 ft, top Austin chalk 3447 ft, sd 3620 ft.

HENDERSON COUNTY—H. M. Wilson et al's H. M. Wilson 1 (943-ac), Thomas Caro sur, 5 mi n of Malakoff, dk. Great State Oil Corp.'s R. Sid Ansley 1-A, N. B. Thompson sur, elev 268 ft, sd 895 ft. Taubert & McKee (was Crosby & Culp's) M. T. Dodd 1 (160-ac), Geo. Aldrich sur, 4 mi e of Malakoff, elev 376 ft, Pecan chalk 2390-2504 ft, Austin chalk 3456-3610 ft, tested sw and sd 4049 ft.

HILL COUNTY—Humble's M. Holderman 1 (80.7-ac), C. Sullivant sur, 1 mi w of Mount Calm, elev 659 ft, Austin chalk 685-1015 ft, top Washita 1170 ft, dr 2810 ft.

HOPKINS COUNTY—D. A. Hale et al's L. N. Hall 1 (70-ac), A. Caro sur, A-143, elev 506 ft, dr 1990 ft.

HUNT COUNTY—D. T. Cauble et al's Y. B. Reed 1 (220-ac), F. Thweatt & C. B. Payne sur A-1054, 3 mi se of Greenville, top Gober chalk 1400 ft, base Austin chalk 2088 ft, top Woodbine sand 2809 ft, top Red Beds 2874 ft, coring 3125 ft. H. G. Samson and Shawver et al's J. R. Phillips 1 (53 1/3-ac), W. L. James sur, elev 522 ft, top Gober chalk 550 ft, top Austin chalk 1113 ft, sd 1617 ft.

KAUFMAN COUNTY—G. H. Germany et al's D. Clark-W. S. Kirby 1, S. Edens sur, dr

1785 ft. L. P. Kean et al's J. B. Hunter 1, R. Sowell sur, 4 mi s of Terrell, elev 453 ft, top Austin chalk 1785 ft, sd 3025 ft.

LIMESTONE COUNTY—C. F. Carter et al's S. E. Dean 1 (75-ac), Pedro Varella sur, 3½ mi sw of Mexia, fsh 1717 ft. David J. Crawford et al's Vol DeLong 1 (59.3-ac) Pedro Varella sur, 2½ mi n of Thelma, elev 522 ft, base Austin chalk 2450 ft, top Woodbine section 2750 ft, sand at 2772-91 ft, td in shale 2807 ft, making 200,000 ft gas and light spray oil with trace sw, sd to test. Dan H. Daugherty et al's Sallie Welch 1 (94-ac), Pedro Varella sur, top Nacatoch sand 834 ft, top Austin chalk 2350 ft, dr 2710 ft. J. Edward Mills et al's J. B. Hunt 1 (34¼-ac), Israel Woods sur, 3 mi ne of Kosse, Pecan chalk 2010-2137 ft, Austin chalk 2780-3158 ft, top Woodbine sand 3578 to 3636 ft, fsh collapsed csg.

MORRIS COUNTY—Watson et al's P. M. Staggers 1, J. D. Nelson sur, co 4259 ft. Maraydun O&G Co.'s T. C. Conner 1 (1000-ac), M. W. Mathews sur, sp and sd.

McLENNAN COUNTY — Humble's Otto Heitmuller 1, J. N. Smith sur, 2 mi se of West, elev 552 ft, Austin chalk 22 to 303 ft, top Woodbine 575 ft, top Buda 665 ft, tested fresh w in Paluxy sand and dry and abd 1264-66 ft.

NAVARRO COUNTY—W. J. Keeling Estate & Peyton Bros.' J. F. Rushing 1 (84-ac), Henry Ford sur, 6 mi w of Currie, elev 530 ft, Austin chalk 2155-2395 ft, top Woodbine 2858 ft, sd 2880 ft. Wm. C. McGlothlin et al's M. A. Dobbins 1 (138-ac), E. Lowry sur A-476, 2 mi n of Corsicana, elev 440 ft, top Austin chalk 1244 ft and hard 1295-1475 ft, base broken chalk 1500 ft, coring 1705 ft. McGlothlin & McCarter's H. A. Barnett 1 (355-ac), Elisha Powers sur, se part of county, elev 345 ft, Pecan chalk 1900-2020 ft, Austin chalk 2815-3175 ft, top Woodbine 3520 ft, dry and abd in sw sand 3895 ft. Wiggins et al's D. A. Donoho 1 (63½-ac), John Cauple sur, 2 mi sw of Corsicana, elev 467 ft, dr 820 ft.

RED RIVER COUNTY—J. E. Dinger Oil Co.'s W. T. Norris 1 (351-ac), Joseph Guest sur, 1 mi s of Detroit, dr 1260 ft.

ROBERTSON COUNTY — H. L. Patton Co.'s W. H. & H. A. Ely 1 (616-ac), Antonio Manchaco sur, 5 mi se of Hearne, rig.

RUSK COUNTY—Clark et al's J. T. Irwin-Hapgood 1, Geo. May sur, 5 mi ne of New Salem, lcn. Ben E. Lamb et al's Haywood Leath 1 (185-ac), L. J. Dooley sur, 2½ mi e of Pirtle, elev 370 ft, Pecan chalk 2418-2793 ft, Austin chalk 3352-3512 ft, set tubing to test, td 3824 ft.

SMITH COUNTY—W. L. Cloud and A. G. Deck's Dora Kendall 1, John Williams sur, 3 mi e of Van field, sd 1340 ft. Sun Oil Co.'s Longley-Reeves 1 (151.45-ac), J. Lindley sur, 4 mi ne Chapel Hill, lcn. Dr. Garland et al's J. W. Bartlett 1, R. G. Stewart sur A-955, 1 mi se Jamestown, dr 1765 ft. W. R. Harrison et al's W. P. Rushing 1, Jacob Herrin sur, 1½ mi se Whitehouse, elev 393 ft, pb from 4673 to 4330 ft, tested sw and sd. Peveto & V. E. Howze's F. J. Watson 1 (77-ac), O. Anderson sur, sw of Tyler, dk.

TITUS COUNTY—Steve Rotunda et al's O. C. Lillianstern 1, W. H. Crawford sur, 5 mi se of Talco, dk.

UPSHUR COUNTY—G. W. Berry et al's D. M. Hollins 1, B. Asher sur, lcn. Russell Tarr et al's J. C. Hall 1 (180-ac), Wm. McFadden sur, 1½ mi nw Kelsey, lcn.

VAN ZANDT COUNTY—J. C. Acree et al's F. W. Anderson 1 (160-ac), John Blair sur, 4 mi n of Wills Point, sd 2065 ft. J. Beren et al's J. R. Bryant 1 (54.44-ac), NCSL sur, sd 1325 ft; Palmer 2, testing 1324 ft. Roy I. Carter & Jennings' S. McGee 4 (43.4-ac), blk 20, Wm. Daniel sur, elev 441 ft, pumped 5 bbls oil with sw, td 1268 ft. Rauch Bros. (Weltex Oil Corp.'s) Bearden-Palmer 1 (61.1-ac), blk 11, NCSL sur, sd 1237 ft.

WOOD COUNTY—R. M. Coleman et al's J. J. Junior 1 (59-ac), Jas. M. Moore sur, 7 mi sw Winnsboro, lcn.

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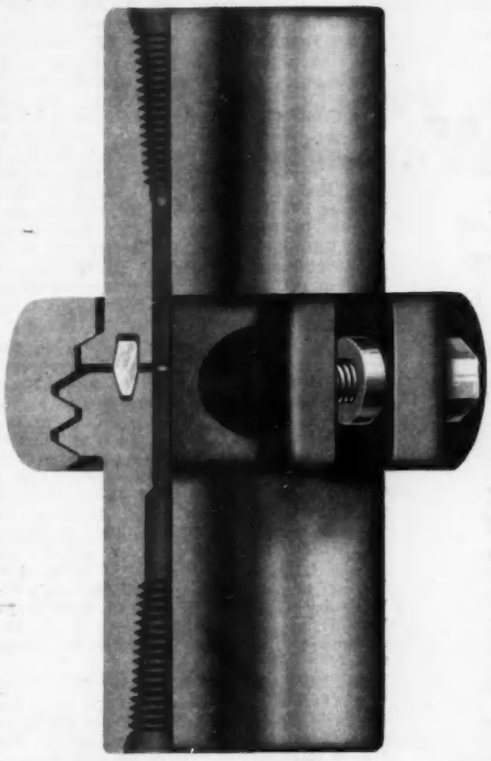

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MARION COUNTY—Ed S. Holman's Lizzie Henderson A-1, R. Bennington sur, cemtd 8¼-in csg at 1919 ft, top Pecan Gap, arr use acid, td 3407 ft.

PANOLA COUNTY—Harry Flinchbaugh & J. E. McAneny's M. G. McCormick 1, Jas. P. McAdams sur, dk. Geo. Le Grand's P. J. Laidleigh 1, A. Thompson sur, wocs surf csg. S. B. Wallace 1, A. M. McLaughlin sur, rur. G. F. Hudson et al's J. F. Nail 1, C. McCrary sur, dr 1900 ft.

SHELBY COUNTY—L. M. Bradley et al's J. J. Ashberry 2, J. M. Mitchell sur, top PG 2045 ft, dr 2950 ft. O. P. Bush, Tr.'s Pickering Lbr. Co. 1, W. H. Harvey sur, dr 1300 ft.

SOUTH TEXAS

ATASCOSA COUNTY—Southwestern Dev. Synd., Ltd.'s T. O. Tom 1, 938 ft nl and 427 ft el (fence on RR right of way) in Edward O'Boyle sur No. 7, 2 mi sw Campbellton, sp.

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BANDERA COUNTY—Plateau Oil Co.'s R. G. Garrison 1, Sec. 506, GC&SF sur, dr 2100 ft.

BASTROP COUNTY — Hiriam Edwards' Murchison 1, 11,200 ft nwl, 4200 ft swl of A. Litton sur, se Cedar Creek, sp. Marts & Beavans' W. L. Miller 1, 2300 ft nwl, 7350 ft nel of 1328-ac tr, blk 22, Dennis Dykes sur, 3 mi s Elgin, dr 1010 ft. Nelson Puett's J. H. Carroll 3, A. Mays sur, sp.

BEE COUNTY—Conservative Oil Co.'s R. C. Harris 1, J. L. Dugat sur, dk, but will not drill until 6-1-35. Diamond Half Oil Co.'s McKinney 1, Spencer Morris sur, dr 3200 ft, slow acct lack water. Dirks Brothers' Miller 1, 330 ft nl, and 330 ft el 674-ac tr, Cayetno Rivas sur, nw Beeville, and 1 mi fr Live Oak County line. Haines-McMillin Oil Corp.'s Stoltzfus 1, sec 14, Ragley sub, J. M. Uranga gr, sp. Humble O&R Co.'s Thompson 2, Garret Roche sur, dr 4640 ft. Jamison & Byron's Campbell 1, 1500 ft n of s cor thence 150 ft w at rt angles in Brooks & Burleson sur, Ab 129, in blk 20, H. Bucher sub of P. L. Campbell land, 2 mi sw W. Tuleta field, sp. Edwin M. Jones' D. E. Robinson 12, sec 5, J. M. Uranga gr, td 4550 ft, all sands below Pettus carried water, set csg, to perf opposite Pettus sand. Mid-Continent Crude Oil Co.'s A. J. Kimball 2, S. Winship sur, td 3555 ft, trying to comp at 3544 ft in sdtr hole. Mid-Tex Pet. Co.'s Travland 1, J. M. Uranga gr, dr 4650 ft. Navarro Oil Co.'s J. E. Roth 1, sec 7, J. M. Uranga gr. George Pace et al's Goree 1, blk 26, Henslee sub of Thomas B. Barton sur, dr 3750 ft. Worth Oil Co.'s Rutledge 1-A, B. Q. Hadley sur, dr 2325 ft. Wrightsman Oil Co.'s A. J. Kimball 1, S. Winship sur, sd 300 ft. (Includes outpost wells in fields).

BEXAR COUNTY—Campbell et al's M. Cantu 1, J. M. Arocha gr, td 1481 ft, bailed down after recementing, now in process of comp. M. A. Friedrich's Fee 1, F. Recardo sur, 12 mi s S. A. and near Laredo highway, set 6⅝ in csg 958 ft, prep to dd. C. A. Ingersoll et al's Louis Mann 1, 180 ft sl, 1000 ft el 60-ac tr in John Christopher sur, 3 mi s Von Ormy, sp and sd. Jones & Keiffer's E. W. LaGrange 1, F. Rolen sur, sd 586 ft. C. J. LeComte's Mayfield Park 1, sd, depth not rept. Noble & Aiken's R. W. Devilbliss 1, Martinez sur, r 2230 ft. George O'Neill et al's Holly Crouch 1, M. Gotari sur No. 5, sec 4, td 1396 ft, prep to run csg. Carroll C. Raborn's Claud McCauley 1, 150 ft nl and wl 81.07-ac tr in Wm. Harris sur No. 52, 4 mi s S. A., ½ mi e Somerset rd. move in spudder for 1500-foot test.

CALDWELL COUNTY—H. H. Coffield's C. C. Franks 1, E. Brown sur, no rept. Reedy et al's T. North 1, A. Floyd sur, bailing little o&sw 2485 ft. R. Y. Walker's J. M. Pierce 1-B, S. Seal sur, td 2539 ft, pb 2172 ft, making some oil.

CALHOUN COUNTY — Continental Oil Co.'s American National Realty Co. 2, sec 6, blk C, P. Garcia sur, mim. Steniberger Pet. Corp.'s Shofner 1, A. Esparza sur, dr 5250 ft.

De WITT COUNTY—Stewart & Egan's R. Kleberg 1, J. J. Tumlinson sur, prep to dd fr 20 ft. S. S. Price et al's W. W. Buehring 1, sec 7, T&NO sur, ru.

DUVAL COUNTY—Mills Bennett's W. R. Peters 1, sec 178, sd 2153 ft repairs, had gas blowout. Conway & Buescher's A. H. Hoffman 2, sec 116, prep to mim. Frank Gravis' C. W. Hahl 1, sec 64, 1 mi w Loma Novio field, sand 3528-34 ft, show saturation, set csg, wocs. Harvey & Henderson's Chernosky 1, sur 226, sp. Johnson Bros.' Hubbard 1, 990 ft sl and wl sec 84, 1½ mi s Loma Novio field, ru. L. & R. Oil & Gas Co.'s C. W. Hahl 1, 330 ft sl and el ne sec 63, 1½ mi sw Loma Novio field, td 2619 ft, top sand 2571 ft, dst 2571-78 ft, 400 lbs. pressure 4 min, dst being made 2590-2619 ft, oil saturation. Magnolia Pet. Co.'s C. W. Hahl 1, sec 67, td 2945 ft, pb 2830 ft, wocs. G. G. Mortimer's Peters Ranch 2-B, 330 ft nl, 2310 ft wl of sw sec 196, 1900 ft e No. 1-B, prep to mim. W. L. Pearson et al's Fitzsimmons 1, sec 291, fsh 4552 ft.

FALLS COUNTY—Davidson et al's Bozeman 1, M. Pryor sur, sd 2928 ft. C. W. Goeld's W. B. Landrum 1, J. A. Manchaca sur, sd 525 ft.

FRIO COUNTY—Amerada Pet. Corp.'s Davies & Burke 1, 1320 ft nwl, 330 ft nel of B. L. Crouch sur, abt 3200 ft sw Halff & Oppenheimer 2, mim. Shoemaker et al's M. Roach Est. 1, C. Wentzel sur No. 139, coring 2390 ft, slight gas show, bldg up abt 600 lbs. pressure closed in, but no volume.

GONZALES COUNTY—Southwestern Dev. Synd.'s Ltd's W. S. Atkinson 1, S. Y. Reims sur, 2 mi s Thompsonville, dr 3110 ft. Diamond Half Oil Co.'s Lottie Bibbs 1, 209-ac tr in Joel R. Robinson sur, nw side Darst Creek field, lcn for Trinity sand test, abt 5000 ft. Grayburg Oil Co.'s McKean 13, Cottle sur, dr below 1755 ft. L. E. Trout et al's M. McKee 1, Green DeWitt sur, sd 2935 ft. A. D. Olcke's N. S. Lowman 1, Cyrus Campbell League, dr 1685 ft. Siedeman's Fee 2, Esnaurrizar sur, dr 1500 ft. Suttle et al's Baenziner 1, A. O. Manchola sur, td 2155 ft, ru to pb and test chalk.

HIDALGO COUNTY — D. D. Oil Co.'s Brock & Showers 1, lot 8, blk 9, Vista Hermosa sub, Por 80, td 3127 ft in sd tr, ran acid bottle test, off 6° 2800 ft, 4° 3060 ft, prep to dd. DMC Oil Co.'s Daskam 1, blk 43, Por 45, sd 3040 ft to rep pumps and boiler, Nutex Oil Co.'s Frank Rabb 1, L. Secs League, sd 125 ft for orders. A. E. Showers et al's Brock & Showers 1, lot 11, blk 18, Por 79, sd 208 ft, dr water well. Skelly Oil Co.'s Seabury et al, Tr. 256, Por 38, nw Samfordyce field, td 2800 ft, sand 2766-84 ft, dst 2780-84 ft, 2000 ft oil, 80 lbs. pressure 6 min., cored ahead, pyrites 2784-94 ft, shale 2786-97 ft, sand 2797-2800 ft, dst 26 fourbles oil, little pressure 20 min, r to set csg. Union Sulphur Co.'s American Rio Grande Land & Irrigation Co. 3, lot 2082, blk 86, N. Capisallo dist, Llano Grande gr, dr 6825 ft.

JACKSON COUNTY — Shell Pet. Corp.'s McCrory 1, 466 ft sl and el sec 15, Morris & Cummings sur, dr 1625 ft.

JIM HOGG COUNTY—French Oil Corp.'s Pena 1, 660 ft el and on line blks 41 and 42, White sub, Share 2, El Peyote Gr, sur 574, Peyote area, lay water line. Magnolia Pet. Corp.'s Killam-Martonez 36-A, sec 275, td 4656 ft, tearing down. Millet et al's Yeager 1, blk 6, sur 20, dr 2100 ft.

JIM WELLS COUNTY—Chas. Evans et al's Cristler 1, 2310 ft nl and el sec 41, I&GN Ry. sur, 6 mi w town of Premont (well carried by some as Barley), dr 1700 ft. O. W. Killam's W. D. Wade 4, blk D, S. A. Agua Dulce sur, dr 4625 ft. Joe Ludin's T. C. Hewitt 1, sec 51, R. P. Haldeman sur, ru and sd. Magnolia Pet. Co.'s A. A. Seeligson 6, V. Canale sur No. 218, sand 3240-49 ft, dst 500 lbs. pressure 5 min, core ahead. Smith & Storey's Schaeffer 1, S. Bigham sur, no rept.

KARNES COUNTY—American Liberty Oil Co.'s Belknap 2, Chas. Haynes sur, sp and set sur csg. Herman Brown et al's E. Timberg 1, James Johnson sur, completed as large gasser, details not available. Luling Oil & Gas Co.'s C. W. Boyce 1, 150 ft nwl and swl of 192-ac tr in

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S. D. Still sur, ½ mi s Marr's Choate 3 gasser, lcn. H. A. Pagenkopf's McAda 1, C. Martinez sur, ru. E. L. Smith Oil Co., Inc.'s J. E. Steed 1, 330 ft nel and nwl of 219.75-ac tr in B&B sur No. 23 and 24, 2 mi s American Liberty's Belknap 1, gasser, ru. R. G. Tonkin et al's Miss Olive Henke 1, Seguin Grant, s Falls City, td 2810 ft, test sw in pb hole 2200 ft, sd.

KERR COUNTY—Jeff Love & Eastland Oil Co.'s Jeff Love 5-E, sec 1594, J. Martinez sur, cement cavity 4500 ft, wocs.

LEE COUNTY—James E. Pederson's C. A. Turner 1, D. Hudson sur, 1½ mi se Tanglewood, td 6560 ft, test sw after pb 6060 ft, reset liner on packer to test again.

LIVE OAK COUNTY—Baugh & McMillan's Walton & Campbell 1, D. R. Fant sur, dr 3100 ft. The California Co.'s G. Blankenship 1, sec 508, A. A. Dunn sur, dr 4566 ft. Henderson Coquat's H. E. Rex 1, GH&H sur No. 1, sd 800 ft. Lion Oil Ref. Co.'s P. E. McNeill Est. 4, 660 ft due s No. 1, blk 9, GH&H sur No. 199, corrected lcn, dr 2060 ft. Loma Oil Co.'s L. Jacob Corp. 34-A, 1320 ft n 27-A, 476 ft el of GH&H Ry. sur No. 7, n of Jacob field, dr 450 ft. W. L. McCoy et al's D. E. Bomar 1, John Hefferman sur, sp. Smith & Storey's Frederick 1, Jane Curry sur, dr 4300 ft, sand 4264-71 ft, dst 4248-71 ft, 25 lbs. gas pressure.

McMULLEN COUNTY—Howard & Claunch's Claunch 4, M. Hely sur, try to comp as gasser in 750-foot sand. Witherspoon Oil Co.'s H. L. Lark 1, blk 110, E. W. B. Scrugham sur, td 1039 ft, test sw, pb 1015 ft, dr out and test.

MEDINA COUNTY—Lynd-Hepler's Mary Ann Jungmann 1, N. B. Rogers sur No. 33, sp.

MILAM COUNTY — C. F. Drake et al's Standard Coal Co.'s G. L. Johnson sur, td 1569 ft, ru to dd, will start shortly. Mincryst Mfg. Co.'s Mrs. C. Dymke 1, W. Allen sur, ¾ mi se Minerva-Rockdale field, sand 1508-12 ft, 6⅝ in csg 1469 ft, stand 550 ft in oil, may put on pump. Second National Oil Co.'s B. P. Ward 2, L. Taylor sur, 13 mi se Rosebud, dr below 60 ft.

NUECES COUNTY—Magnolia Pet. Co.'s S. Page 1, Kinney sur No. 586, sec 8, dr 5235 ft. Southern Minerals Corp.'s Ocker 4, sec 8, dr 1200 ft.

REFUGIO COUNTY—Humble O&R Co.'s Mrs. M. M. Marberry 1, 3700 ft nel, 625 ft sel of J. Dunn sur, nel of sur is S. A. river and Victoria County line, well originally reported in Victoria County, ru. Magnolia Pet. Co.'s Mattie Wood 1, S. Turner sur, dr 2575 ft. Quintana Pet. Corp.'s Tom O'Connor 2-B, M. L. White sur, sd 8757 ft.

SAN PATRICIO COUNTY — Heep Oil Corp.'s Welder 1-B, Portillo sur, td 5910 ft, pb 5454 ft, wocs. Humble O&R Co.'s Welder 1, lot 4, A&O sub, Villareal gr, making dst 5780-99 ft. A. E. Masterson et al's W. A. Wuszbach 1, 330 ft wl, 4350 ft sl of C. C. Hornsby sur, 1 mi n Angelita, ru. Plymouth Oil Co.'s E. H. Welder 2-B, Musquiz sur, td 6854 ft, 7 in csg set 5386 ft in sdtr hole, dr out plugs; Welder 1-C, sec 49, re sub Welder Ranch, set 1291 ft, sur csg, wocs. Stanolind O&G Co.'s J. J. McMillan 1, P. Fitzsimmons sur, r 4200 ft.

STARR COUNTY—C. R. Borah et al's A. Guerra 1, sh 6, San Jose gr, dr 2750 ft. John H. Clopton's Roos et al's Por 92, milling 4334 ft; D. L. Tijerina 1, blk 14, sh 14-C, Por 80, sd 1400 ft for water. Conroe Drlg. Co.'s Guerra 1, blk 35, J. N. Crawford sub, Por 56, fsh 2370 ft. Conway & Emanuel's Starr County Cattle Co. 1 (carried by some as Armstrong, Emanuels & Adams), blk 57, JL sub, Por 89, td 2711 ft, dr out plugs. Crawford et al's Hicks & Phelps 1, Pedernal gr, td 1617 ft, test dry, pb 1200 ft, wocs. H. L. Curry et al's Kelsey Bass 1, sur 8, Por 75-76-77, sd 1187 ft. Goodwin et al's N. Pena 1, share 80, Por 81, dr 1325 ft. W. F. Lacy et al's G. M. Abney 1, Por 99, mir. Lester & Duffield, Inc. & R. H. Vice et al's E. B. Carruth et al, Por 91-92, sh 1-B, td 4016 ft, pb and dr to 2908 ft, gas sand 2882-95 ft, oil sand 2895-2908 ft, set 7 in csg 2895 ft, wocs. Merren, Johnson & Bond's Starr County Cattle Co. 4, blk 24, JL sub, Por 89, coring 3900 ft. Mitchell et al's R. G. Salinas 1, sh 39, Por 80, dr 900 ft. Dale Sneed's Guerra 1, sh 92, Por 68, sd 335 ft. Sun-Ray Oil Co.'s Munoz 1, 23,358 ft nl, 330 ft el Por 75' abt 4 mi s Sun-Ray Sanchez 1, lcn. Texas Inv. & Royalty Co.'s Mrs. S. Welch 1, Pedernal gr, dk. E. B. VanHuss et al's Garcia Land and Cattle Co. 1, Por 100, td 2792 ft, sand 2785½-88 ft, test sw, now sd.

TRAVIS COUNTY—C. A. Stubbs' Julius Kerlin 1, I. Lindsay sur No. 61, sd 1135 ft.

VICTORIA COUNTY—Moore & Ahern's Henderson & Pickering 1, W. Rupley sur, prep to sp.

WEBB COUNTY — Foster Barnsley O&G Trusts' Benavides 11, sec 683, sd 3815 ft. Frank McMillin's A. M. Bruni Est. 1, sec 77, dr 2585 ft.

WILLACY COUNTY—W. W. Silk et al's Stillman 1, lot 16, blk 30, Stillman Ranch sur, td 1700 ft, deal made with King-Wood Oil Co. to dd. South Texas Dev. Co.'s F. Armendiez 1, share 4, dr 4810 ft.

WILLIAMSON COUNTY—Gault & Mims' H. V. Seggern 1, John Bevil sur No. 56, dr 325 ft. H. F. Goff's Timmerman 1, H. Cartwright sur, dr 300 ft. J. Morgan Russell et al's Nelson Estate 3, J. J. Justice sur, sd 894 ft.

ZAPATA COUNTY—O. W. Killam's A. M. Bruni 2, Barrocito Pasture, J. V. Borrego gr, dr 1900 ft. Nordan & Morris' C. Vela 1, blk 6, Por 20, td 2316 ft, top sand 2055 ft, set 7 in csg 2291 ft, wocs. Joe Palmer's J. M. G. Martinez 1, blk 27, sur 434, dr 1450 ft.

TEXAS GULF COAST

ANGELINA COUNTY—Lee Tex Oil Co.'s A. H. Geisler 1, mile nw of Lay, B. J. Thompson sur, dk. Koch & Duffey's L. W. Alberry 1, near Diboll, J. A. Prado sur, sd 2020 ft. E. B. La Rue's W. D. Ivey 1, near Huntington, Scarborough sur, sd 1464 ft.

BRAZORIA COUNTY—Amerada Petroleum Corp.'s Houston Farms Dev. Co. 1, s of Liverpool, L. G. Bachelder sur, cleaning hole. Big Creek Oil Co.'s F. Truska B-1, s of Alvin, H&TC sur No. 7, sd 6001 ft.

CHAMBERS COUNTY—Humble's A. Middleton 1, 6 mi e of Anahuac, H&TC sur, sec 58, washing well in to comp., td 7088 ft. South Gulf Oil Corp.'s R. M. White 1, ne of

PROGRESS REPORT
for the Year 1934 in . . .

TOTAL of NEW STRUCTURES in Texas-Louisiana "Gulf Coast Area" proved for production during the year of 1934	**8**
Original reflection survey made and structure recommended by the INDEPENDENT EXPLORATION COMPANY	**5**
Area checked with reflection survey and structure recommended by the INDEPENDENT EXPLORATION COMPANY	**2**
Area not worked by the INDEPENDENT EXPLORATION COMPANY	**1**
	8

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Turtle Bay, Luke Bryan sur, dk. Sun Oil Co.'s Hamilton 1, sw of Seabreeze, T&NO sur, sec 128, in heaving shale reaming at 9055 ft.

FT. BEND COUNTY—Turnbull & Irwin's Herman Hospital 1, e of Richmond, J. S. Cartwright sur, dr lime 4410 ft.

GRIMES COUNTY—W. B. Roan et al's G. W. Sealy 1, sw of Kellum Springs, B. F. Smith sur, dr shale 1550 ft.

HARDIN COUNTY—Jack Frazier's Sternenberg 1, nw of Kountz, J. Pearson sur, lcn.

HARRIS COUNTY—Red Bluff Oil Co.'s Seureau 1, w of Red Bluff, Wm. R. Harris sur, abn 6028 ft. Cockburn & Frazier's Herman Hospital 1, e of Addicks, Wm. Hardin sur, abd 7577 ft. Hill & Hill's C. R. Wharton 1, w of Fairbanks, W. C. R. R. sur, sec 5, dr shale 6060 ft. W. U. Paul's House 2, 100 ft n of House 1, M. Magruda sur, dr 7490 ft. T. S. & F. Oil Co.'s J. B. Hines 1, sw of Lynchburg, A. McCormick sur, wocs 3524 ft.

JASPER COUNTY — Republic Prod. Co.'s Sabine Tram Co. 1, ne of Buna, H&TC sur, sec 71, dr sand 2201 ft.

JEFFERSON COUNTY — Sun Oil Co.'s Long 1, sw of Nome, J. Blair sur, swabbing 6000 ft, td 8470 ft.

LIBERTY COUNTY—Extension Oil Co.'s J. A. Lovett 1, sw of Hull, P. P. Devers sur, sd 4049 ft. Liberty Independent Oil Co.'s J. M. Neal 1, se of Davis Hill, S. Strong sur, dr shale 3768 ft.

MADISON COUNTY—Madisonville Prod. Co.'s D. C. Cannon 1, nw of Madisonville, J. P. Phillips sur, dk.

MATAGORDA COUNTY — Cockburn Oil Corp.'s Hawkins 6, Sheppards Mott, D. McCarthy sur, abd 5803 ft. H. M. Smith's Wadsworth Est. 1, Mad Island prospect, S. R. Fisher sur, lot 3, B-5, dr shale 5959 ft.

MONTGOMERY COUNTY—W. C. Keeble's T. S. Foster 1, J. M. De La Garza sur, dr shale 1801 ft.

WALKER COUNTY—Boone Brothers' Tex. L. L. L. Co. 1-C, se of Kittrell field, M. Millsap sur, sd 2240 ft.

WALLER COUNTY—Smith et al's J. R. Garrett 1, e of Millhiem, S. M. Williams sur, sd 4500 ft.

WHARTON COUNTY — John Deering's Kountz 1, se of Louise, S. A. & M. G. R. R. sur, dr shale 6231 ft. The Texas Co.'s Pierce Estate 1, se of Pierce, I. & G. N. sur, dr sand 4515 ft.

WASHINGTON COUNTY—Arkansas Fuel Oil Co.'s A. Witschorke 1, nw of Burton, J. D. Miller sur, dr gumbo 2470 ft.

LOUISIANA COAST

ACADIA PARISH—Humble's Rice Milling Co. 1, s of Crowley field, sec 27-10s-2e, dr shale 8742 ft. Woodley Pet. Co.'s Dr. Newman 1, Churchpoint, sec 24-7s-1e, dr 5683 ft.

CALCASIEU PARISH—Nichols & McCaleb's Cray 1, 3 mi nw of Starks, sec 22-8s-13w, dr shale 605 ft. Gulf Refining Co.'s W. H. Stark 1, 6 mi s of Vinton, sec 26-11s-12w, dr shale 8004 ft.

CAMERON PARISH—The Texas Co.'s Jessen 1, s of Calcasieu Lake, sec 24-14s-10w, dr shale 8273 ft.

JEFFERSON PARISH—Lincoln Oil Co.'s Rigaud 1, Grand Island, sec 28-21s-25e, dr gumbo 4212 ft.

JEFFERSON DAVIS PARISH—The Texas Co.'s Bayou St. Denis 1, 6 mi se of Lafitte, sec 19-17s-24e, coring 6984 ft. Strake Oil Corp.'s Calcasieu Bank 1, 3 mi sw of Woodlawn, sec 1-9s-6w, dr shale 8315 ft.

ST. MARTIN PARISH—The Texas Co.'s State Blum Bob 1, 3 mi ne of Henderson, sec 9-8s-7e, dr sand and gravel 222 ft.

ST. MARY PARISH — Edwards Drilling Co.'s Chetemaches 1, near Charenton, sec 34-13s-9e, dr shale 7153 ft.

NORTH LOUISIANA

BIENVILLE PARISH—Saline Drilling Co.'s Pardee 1, ne ne 27-14n-6w, dr 3250 ft, sandy shale.

BOSSIER PARISH — Howard & Scott's Sherrill 1, nw sw 13-18n-12w, ru and sd. W. A. Kirklin, Tr.'s Garrett & McKellar 1, se nw nw 3-21n-13w, dr 1206 ft, gumbo. Plain Dealing Synd.'s S. H. Bolinger Lbr. Co. A-1, sw se nw 31-23n-12w, dk. L. R. Skidmore's Davis 1, se se 12-18n-13w, sd 1150 ft.

CADDO PARISH—Ed Bailey et al's Hartzo 1, ne nw 28-22n-15w, 12½ in csg 90 ft, dr 1152 ft.

CATAHOULA PARISH—Phillipi et al's La. Cent. Lbr. Co. 1, nw se 2-9n-6e, rur to pb for shallow gas test, td 3016 ft.

CLAIBORNE PARISH—K. C. Bundy's J. K. King 1, 12-21n-7w, dk. J. C. King et al's Odis Webb 1, nw ne 21-21n-8w, dr 1784 ft, chalk. E. T. Oakes et al's Patton Est. 1, ne ne 1-20n-5w, repr dk, rog.

DE SOTO PARISH—E. B. Bird et al's A. D. Johns, Jr., 1, se nw 20-14n-16w, spd cemtd 10-in csg 40 ft. Century Oil & Drilling Corp.'s J. M. Norton 1, sw se 27-11n-14w, tested 4 mil ft gas and show sw, sd 2825 ft, elev 244 ft. G. O. Collins et al's J. H. Riggs 1, ne sw 21-14n-13w, wocs 12½ in csg 45 ft. Dempsey & Manziel's Thigpen 1, ne sw 33-13n-13w, sd 1745 ft chalk. P. G. Frailey et al's J. E. Stell 1, 5-12n-16w, rur. Hester et al's Alston 1-A, ne sw 11-11n-16w, dr 1890 ft. Ramsey-DeSoto Oil Co.'s J. W. Ramsey 1, se nw 36-11n-11w, sd 210 ft. E. L. Foster et al's Youngblood 1, ne ne 9-11n-14w, sd 1850 ft. J. T. McCormick et al's Harris 1, sw se 11-12n-14w, mim.

EAST CARROLL PARISH—Century Oil & Drilling Corp.'s Olivedell Pltg. Co. 1, 56-21n-12e, sd 170 ft, to complete rur.

NATCHITOCHES PARISH—Clyde Creighton's Friedman Est. 1, swc 52-7n-6w, sd 2935 ft. Edwards & Turner's Prudential Life Ins. Co. 1, nw nw 26-10n-6w, dk. Roy Raines et al's Fee 1, sw sw 28-9n-10w, fsg ds- td 3660 ft. Leslie Prod. Co.'s Tom Moffitt 1, se nw 19-10n-10w, lcn. B. E. Taylor's DeBlieux 1, 83, 10n-7w, dk.

MADISON PARISH—Frazier et al's Frazier 1, nw se se 23-17n-10e, dk.

RAPIDES PARISH—S. J. Taylor's Bentley Lbr. Co. 1, 40-5n-1w, elev 108 ft, base Jackson 2175 ft, base Minden 3040 ft, fs drill pipe, td 4465 ft (corrected depth), Wilcox shale.

RED RIVER PARISH—Sterling O&R Co.'s Long-Bell Lbr. Co. 1, se ne se 19-13n-9w, owdd, td 2828 ft.

SABINE PARISH—M. T. Hines' J. B. Hill 1, sw ne 4-6n-11w, 10-in csg 40 ft. Laurel Pet. Co.'s Long-Bell Lbr. Co. 1, sw sw 14-8n-14w, dk and rur. Lawson, Leavell & Bryant's Whitney Corp. 1, 5-9n-13w, tested sw 3160 ft, dr 3170 ft. Whitehurst et al's Logan Oil Co. 1, nw ne nw 3-9n-13w, wosr, td 1956 ft.

WEBSTER PARISH—Virgil Likens' E. L. Stewart 1, nw nw 23-18n-10w, dk.

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Gas Masks

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E. D. Bullard Company, San Francisco, has developed a new type of outfit to meet the flexible requirements of many users of gas masks. Known as a reel hose mask, the apparatus consists of a standard face piece and body harness, air hose mounted on a portable reel, and a portable, aluminum blower, which may be entirely removed from the carrying trunk.

The light weight of each of these units makes it possible to carry them from place to place without trouble. By carrying the blower to a point near the place of use, a minimum amount of hose is necessary. Yet in spite of the light weight and portability, the manufacturers claim this blower will develop 27.5 percent more air than the standard blower. This increased capacity is due to improvement in design and selection of materials of construction.

The blower is mounted on an oak base and set on the top of the carrying trunk. This reel hose mask is used in urban operations as well as in operations in the field. Many operators have clamped the blower to the running board of an automobile. Clamps are supplied for this purpose, or for attaching the blower to any other convenient surface.

Pumping Units

INTERNATIONAL DERRICK & EQUIPMENT COMPANY

International Derrick & Equipment Company, Columbus, Ohio, has announced a new series of geared pumping units. A greater overall pumping efficiency, simplified installation and operation, and reduced maintenance costs are claimed for the new units.

The unit assembly has all parts mounted on a rugged, all-welded steel skid base to insure proper alignment of all parts. Interchangeability of parts is another feature that may prove valuable in case of emergency. The new units are the twin crank, double reduction, geared types.

Ideco Geared Pumping Unit

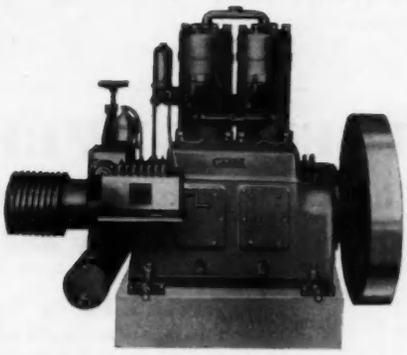
Gear wheels are made of heat treated cast steel, and pinions are forged integrally with the pinion shafts from heat treated alloy steel billets. Gears are of the generated continuous tooth herringbone type, lapped in after cutting and before assembling into the units. Gears run in a bath of oil, and a positive system of lubrication is employed. Tapered wrist pins fitting into tapered crank holes minimize any tendency of the pin to work loose. The wrist pin operates in SKF spherical roller bearings in a latch type housing.

These pumping units in the new "DT" series are available in sizes ranging from 10 to 75 horsepower and for use with any type of prime mover.

Pumping Engine

CLARK BROTHERS COMPANY

Clark Brothers Company, has announced its new "Bobcat" pumping engine, which was designed to operate in a much smaller space than earlier pumping engines. The manufacturer claims this engine to be the first two-cycle, vertical, multi-cylinder, medium-speed engine offered to the trade, and designed especially for geared and chain driven pumping units. The manufacturer will mail additional information upon request.



Clark Brothers Engine

Hard Metal

ARMITE LABORATORIES

Armite Laboratories, 1900 East 65th St., Los Angeles, has announced a new and moderately priced hard facing rod for bits and reamers. The manufacturer claims that this new rod is comparable in hardness to diamond inserts. It is further claimed that the metal has equal or greater covering power than other hard facing metals, and forms a tough armor that wears exceptionally well in actual service.

The new rod is completely melted by the acetylene flame, and according to the manufacturer does not come under existing patents that otherwise might prohibit its use. In facing drag bits, the saw tooth effect is accomplished by first cutting shallow grooves and then filling with the new metal.

NEWS *from the* *Industry's* EQUIPMENT MAKERS

Atlas Supply Appointed Toncan Iron Distributors

Appointment of Atlas Supply Company, Inc., 35-39 Woodward Ave., Brooklyn, N. Y., as warehouse distributors of rust-resisting Toncan Iron sheets has been announced by N. J. Clarke, vice president in charge of sales, Republic Steel Corp., Youngstown, Ohio. A complete stock of sheets will be maintained by the new distributor, forming still another link in the nation-wide chain of distributors of Republic's Toncan Iron.

Foreign Equipment Purchases Increasing Axelson Survey Shows

Surveys conducted during the past year by executives of Axelson Manufacturing Company tend to indicate a definite upward trend in the buying of oil field equipment on the part of foreign operators. General world economic stability, particularly as regards the oil industry, is doubtless the cause of this condition.

According to R. M. Humphreys, assistant sales director of the Axelson organization, there are two marked features noticeable in such foreign surveys as the company has carried on to date. First, foreign operators are ordering specific types of pumps to fit different oil well pumping conditions; second, there is a definite indication that the products of American manufacturers are playing an increasing part in the total foreign oil field buying.

Optimistic reports upon business conditions have been received from Axelson representatives in Rumania, Trinidad, Venezuela and Argentine.

W. C. Norris Completes 53 Years in Oil Supply Business

Employes of the W. C. Norris Works at Tulsa, Oklahoma, this last week have been extending congratulations to W. C. Norris upon completion of his 53rd consecutive year in the manufacture of oil well pumping supplies.

His career has perhaps been unique in that his operations have never been disturbed by labor trouble.

M. J. CONLEY

Conley to South America For Globe Oil Tools

Leaving Los Angeles by plane on February 25, M. J. (Bud) Conley is flying to the various headquarters offices and accessible fields of Venezuela, Colombia, West Indies, Ecuador and Argentine, in the interests of Globe Oil Tools Company.

Beaumont Iron Works Executives Eulogized

Resolutions expressing deep appreciation for the community and company services performed by the late Joe M. Myers and Lee J. Black, formerly directors of Beaumont Iron Works, were passed at a meeting of the board of directors of Beaumont Iron Works.

The resolutions set forth the sincerity and understanding of men of both these gentlemen who were leaders in their community. Mr. Myers was one of the pioneers in oil development in Texas, being an original producer at Spindletop.

Mr. Black was founder of Beaumont Iron Works and long its president. Both were men of strong personalities, dependable and honorable and, as expressed by the resolutions, uncompromising foes of sham and duplicity.

Miller Sand Pump Company Opens Kilgore Store and Shop

Miller Sand Pump Company of Sapulpa, Oklahoma, has opened a branch supply store and machine shop at Kilgore to serve the demand for their cleaning out equipment in the East Texas field. This new store will carry in stock all sizes and lengths of Miller sand pumps and other Miller products and will be under the personal supervision of S. John Smith.

FITLER TORPEDO LINES

Uniform in Size, Easy to Handle and . . . Unequaled for

Strength, Flexibility *and* Durability

FITLER Manila Torpedo Lines are made from a fine grade of Manila Hemp especially selected for this particular purpose. They are made 3-Strand and 4-Strand, and usually are ¼" in diameter.

FITLER Manila Torpedo Lines are furnished Tarred, Lightly Tarred, or Untarred . . . also Sea-Treated. Fitler Sea-Treated Torpedo Lines are scientifically treated with the famous Fitler Dark Bronze Water-Repellant Preparation and Preservative.

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1201 Commerce St.

Squeaks *from the* BULL WHEEL

Supply companies in the oil industry rarely have arguments with customers. The business is too big and the men engaged in the industry too fair-minded for many disagreements to come up. However, now and then, strange things happen to pieces of oil field equipment. Maybe some of the accidents do not happen, but are made like the wrecked car:

The man with a black eye and badly scratched face, who was smashing up a new, good-looking car with a sledge hammer, naturally attracted a crowd. He would hit the car, pause, take a deep breath, and hit it again. He aimed blows at the running board, mudguards, radiator, and windshield.

"Your car?" asked a bystander.

"My car," said the man, as he smashed a headlight.

He surveyed the result and grunted with satisfaction. Then he handed the hammer to a garage man—who, it turned out, had lent it to him—got in the car, and drove off. As he disappeared the garage man explained what it had all been about.

"The fellow got mixed up in a fight last night," he said. "Got badly knocked about, so he stayed at a hotel instead of goin' home. Called up his wife and told her he'd been in an accident. So"—the garage man shrugged his shoulders—"so he had to have an accident."—*Herk U. Lee's Log Book.*

"So your married life was very unhappy? What was the trouble? December wedded to May?"

"Lan' sake, no, mum! It was Labor Day wedded to de Day of Rest!"

Robert, if you are always very kind and polite to all your playmates, what will they think of you?

Some of 'em would think they could lick me.

"Yo' lazy loafer! S'pose I was took sick an' couldn't do washings, how would you live?"

"Ah never thought ob dat, honey. Ah'll hustle 'round tomorrow and git some health insurance on you."

"I want a hat, but it must be in the latest style," announced Mrs. Van de Hoofus, as she entered the millinery shop.

"Kindly take a chair, madame, and wait a moment," said the clerk. "You are in the nick of time. The fashion is just changing.

The cockney child had just started school.

"Wot's yer name?" he was asked.

"Fred!"

"Blimy! That ain't a nime—that's wot yer muvver sews yer pant wiv!"

I'm surprised at you. Do you know what they do with boys who tell lies?

Yes, sir. When they get old enough the firm sends them out as salesmen.

The vaudeville performer who was billed as "The Man with the X-Ray Eyes" was giving the audience some samples of his powers. He took a newspaper, placed over it a thick woolen cloth, and then read out the contents to the audience.

In the front row there was an elderly maiden lady. She got up and went out, saying:

"This is no place for a lady with a thin silk dress on."

The teacher was explaining to the class the meaning of the word "recuperate." "Now, Tommy," she said to a small boy, "when your father has worked hard all day, he is tired and worn out, isn't he? Then, when night comes, and his work is over for the day, what does he do?"

"That's what mother wants to know."

"Well, and how are you getting on with your courtship of the banker's daughter?" inquired Jackson.

The young suitor beamed happily. "Not so bad," he replied. "I'm getting some encouragement now."

"Really," put in his friend. "Is she beginning to smile sweetly on you, or something?"

"Not exactly," replied the young man, "but last night she told me she had said 'No' for the last time."

—tipping a

Real Friend

on a—

Real Product

Venezuelan Driller:

"This Diamond Metal you write about is even better than you promised. As we say down here: *It's a Pip for Wear!*"

Gulf Coast Driller:

"As we say up here: You tellin' me? . . . I like to pass along tips to a Buddy when it helps his job!"

Diamond Metal . . .

the tough-hard Diamond Substitute of the Industry, is sold for EXPORT by

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METAL CO. INC.
HOUSTON, TEXAS

BRAUER MACHINE & SUPPLY CO.

- Manufacturers of Oil Field Specialties.
- We specialize in manufacturing Special Equipment to your specifications.
- Equipped for general oil field repair work.

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ELASTIC STOP NUTS
(The Last Word in Lock Nuts)

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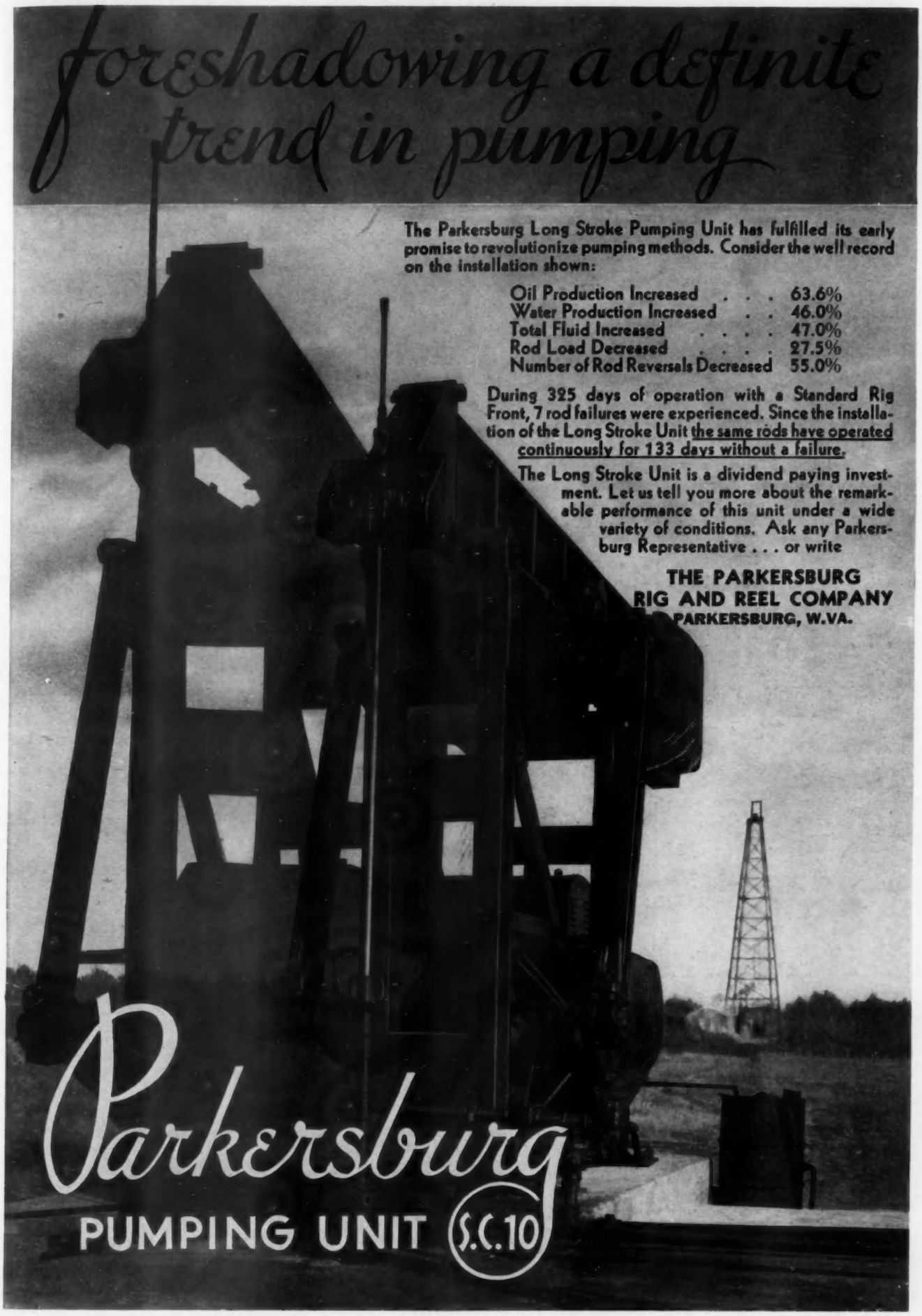
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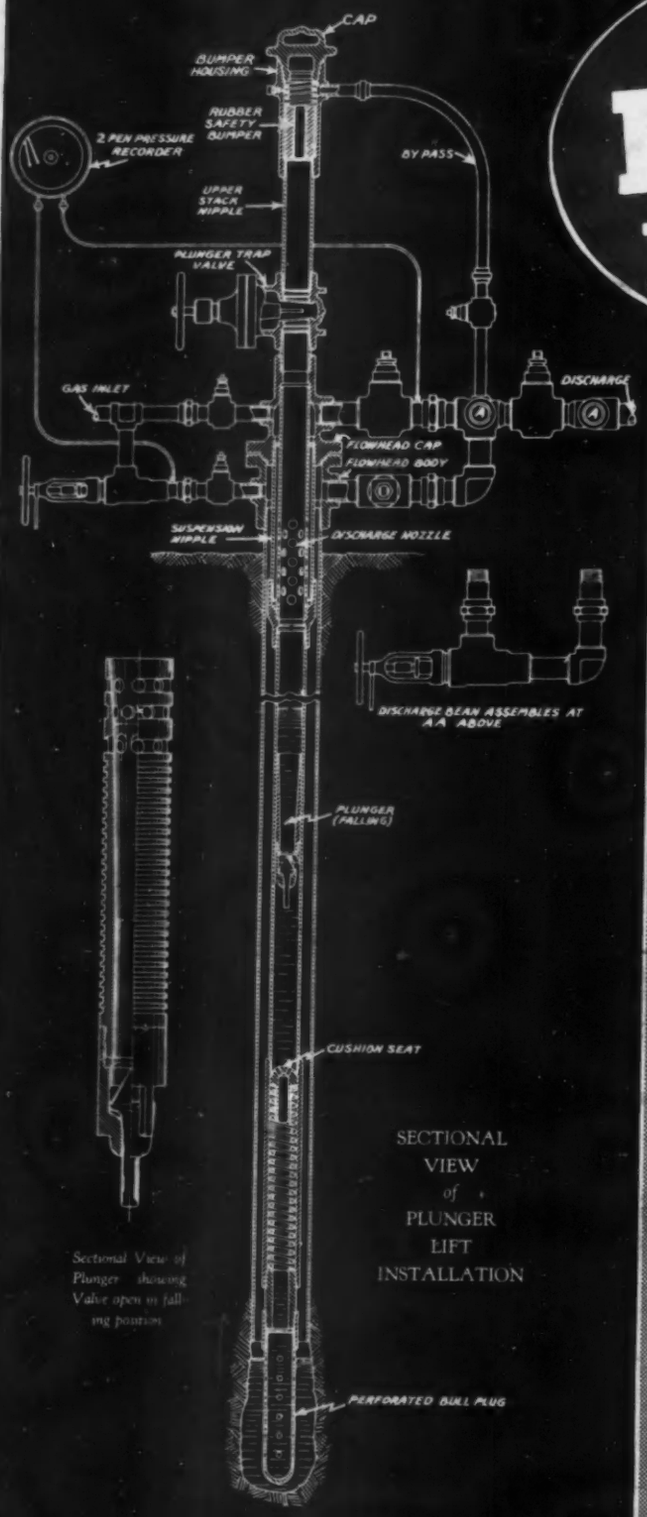

Sectional View of Plunger showing Valve open in falling position

SECTIONAL VIEW of PLUNGER LIFT INSTALLATION

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...the newest and most economical method of lifting Oil

The Hughes Plunger Lift is an apparatus adapted to produce oil from deep wells, using only the energy of the gas associated with the oil, or supplying additional gas where required.

This new method of lifting oil was devised in an attempt to avoid the excessive maintenance expense resulting from the high pressures, close fits, and severe alternating stress encountered in the operation of deep well sucker rod pumps.

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13. Wells of great depth can be pumped.
14. The well will often operate with Plunger Lift on well gas alone, long after natural flow has ceased.
15. A large group of wells can be operated from a central compressor station.

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